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DISEASES CAUSED BY BACTERIA AND FUNGI

GILLESPIE, W. A. & ALDER, V. G. (1952). **Production of opacity in egg-yolk media by coagulase-positive staphylococci.**—*J. Path. Bact.* **64**, 187-200. **1434**

Most coagulase-positive staphylococci produce opacity when grown in egg-yolk medium; filtrates of broth cultures produce a similar effect. This is not due to lecithinase but is apparently associated with the production of lipase for certain fats.—J. E. SMITH.

OKLJEŠA, B. & KOVAČEVIĆ, M. (1951). Zarazno presušenje vimena kod krava muzara. [*Streptococcus agalactiae* **infection in dairy cows.**] — *Vet. Glasn.* **5**, 681-711. [In Croat.] **1435**

A conventional paper.—I. MARTINI.

SIMON, J. & SCHMIDT, E. G. (1953). **Terramycin in the treatment of streptococcic mastitis.**—*Vet. Med.* **48**, 61-62. [Authors' summary copied *verbatim*.] **1436**

Terramycin hydrochloride, administered either in an ointment vehicle or in an aqueous solution was well tolerated by the mammary gland. Terramycin ointment, 7·1 gm. containing 30 mg. of terramycin hydrochloride per gm., was inferior to 100,000 units of penicillin in the treatment of mastitis caused by *Str. agalactiae*. Terramycin ointment, 7·1 gm. containing 60 mg. of terramycin hydrochloride per gm., was as good therapeutically as 100,000 units of penicillin in the treatment of mastitis caused by *Str. agalactiae*.

LEGATES, J. E. & GRINNELLS, C. D. (1952). **Genetic relationships in resistance to mastitis in dairy cattle.**—*J. Dairy Sci.* **35**, 829-833. [Authors' summary modified.] **1437**

In a study of data involving 956 animals from 11 North Carolina dairy herds an estimate of 0·27 was obtained for the inheritability of resistance to mastitis. The data also suggested that deviations in dominance contributed to the total genetic variance. They did not reveal a phenotypic relationship between mastitis and production. As an immediate practical measure, the use in artificial insemination of sires having resistant dams and sisters was suggested.

I. LANCEFIELD, R. C. & PERLMANN, G. E. (1952). **Preparation and properties of type-specific M antigen isolated from a group A, type 1 hemolytic streptococcus.**—*J. exp. Med.* **96**, 71-82. **1438**

II. LANCEFIELD, R. C. & PERLMANN, G. E. (1952). **Preparation and properties of a protein (R antigen) occurring in streptococci of group A, type 28 and in certain streptococci of other serological groups.** — *Ibid.* 83-97. **1439**

I. Type-specific M antigen was extracted by heating at pH 2 and purified by ribonuclease treatment followed by ammonium sulphate precipitation. Electrophoresis showed increased purity but there were indications of heterogeneity.

II. [See also *V.B.* **18**, 830]. The authors obtained a purified protein which they referred to as R antigen and which differs from M antigen in being unrelated to virulence, in resisting tryptic digestion, and in being extracted by heat at pH 8.—A. SEAMAN.

MCCARTY, M. (1952). **The lysis of group A hemolytic streptococci by extracellular enzymes of Streptomyces albus. I. Production and fractionation of the lytic enzymes. II. Nature of the cellular substrate attacked by the lytic enzymes.**—*J. exp. Med.* **96**, 555-568 & 569-580. [Author's summary modified.] **1440**

The lysis of group A haemolytic streptococci by extracellular enzymes of *Streptomyces albus*

NOTE.—*The* V.B. *references given in square brackets now refer to abstract numbers and not to page numbers.*

was studied. The most favourable material for fractionation of the lytic enzymes was obtained by surface growth on shallow layers of liquid medium containing an acid hydrolysate of casein, glucose, and salts. The results of fractionation experiments showed that the potent proteolytic enzyme of *S. albus* is not able to lyse group A streptococci, and that the initiation of lysis is dependent upon the action of a second, non-proteolytic enzyme. The nature of the non-proteolytic enzyme has not been determined. It appears to be a ribonuclease or a lysozyme-like enzyme.

CHU, H. P. (1952). **Variation of *Bacillus anthracis* with special reference to the non-capsulated avirulent variant.** — *J. Hyg., Camb.* **50,** 433-444. **1441**

From normal, virulent, potentially capsulated *B. anthracis* cells, a stable, non-capsulated, avirulent variant is regularly produced. It gives a rough colony of non-capsulated cells irrespective of the cultural conditions. All stock cultures examined contained 0·14–32·4% of the variant and it was found in hair and wool from anthrax endemic areas.—A. ACKROYD.

MEYNELL, G. G. (1952). **A sensitive modification of the Middlebrook-Dubos haemagglutination test.**—*J. Path. Bact.* **64,** 647-649. [Abst. from author's summary.] **1442**

M. found the Race-Coombs agglutination test with Coombs' serum to be far more sensitive for tuberculous antibodies than the standard tests. He did not consider that this modification will increase the diagnostic value of the haemagglutination reaction in TB. Other applications of the technique were suggested.

WELLS, K. F. (1950). **Progress in control of bovine tuberculosis in Canada.**—*Proc. 54th Ann. Meet. U.S. Livestock sanit. Ass.* pp. 107-109. **1443**

A brief review of the advances made in the control of TB. in cattle in Canada during the period 1945-50.

All areas established for cattle TB. eradication are designated "Restricted Areas". When the incidence in these areas has been reduced to 0·5% or less by testing *all* cattle therein, the area is termed an "Accredited Area". If the incidence is reduced to 0·1% the area is accredited for 6 years; if reduced to 0·5% or over 0·2% it is accredited for 3 years.

Accredited Areas are retested as rapidly as possible and recently priority has been given to the initial testing of new areas, particularly where the cattle population is dense. The Restricted Area plan now covers all territories east of the Great Lakes and the entire Province of British Columbia, where about 50% of the cattle population is now of Accredited Area status.

During the year ended March 1950 over 2,500,000 cattle were tuberculin tested with 1·22% reactors, of which 10% were condemned for food purposes.—E. C. HULSE.

DAIGELER, A. (1953). Tuberkelbakterienausscheidung aus klinisch gesundem Euter von tuberkulinpositiven Kühen. **[Secretion of tubercle bacilli from clinically healthy udders of tuberculin-positive cows.]** — *Tierärztl. Umsch.* **8,** 38-41. **1444**

Four out of 211 cows positive to the tuberculin test and with clinically healthy udders were secreting tubercle bacilli.

—ROY MACK.

NÈGRE, L. & BRETEY, J. (1952). Cultures jeunes de bacilles tuberculeux et éléments filtrables de ces germes. **[Filtrable forms of tubercle bacilli.]**—*Ann. Inst. Pasteur.* **82,** 1-12. **1445**

Filtrable forms of human and bovine types of tubercle bacilli of less than 8 days' period of growth on culture media were shown to pass Chamberland L_3 candles when a pressure greater than 50 cm. mercury was used. These filtrable forms were not demonstrable by culture methods and g. pigs and rabbits injected i/v with the filtrates remained healthy, though some gave a transitory reaction to tuberculin and in a few cases acid-fast organisms were isolated in rabbits' lungs and in the mediastinal lymph nodes of g. pigs. Cultures and further animal passage from these lesions were negative. G. pigs and rabbits inoculated i/v with filtrates of cultures older than 30 days obtained with the same pressure did not become sensitized to tuberculin.

The authors suggested that the supposition of the existence of an ultravirus of TB. has been eliminated by these experiments and that the filtrable forms are young variants of the tubercle bacillus.—E. C. HULSE.

BARNETT, M., BUSHBY, S. R. M. & MITCHISON, D. A. (1953). **Isoniazid-resistant strains of tubercle bacilli: their development and stability.**—*Lancet.* **264,** 314-320. **1446**

Isoniazid-resistant variants of H 37 RV induced *in vitro* quickly revert to their original sensitivity after having been in contact with the drug for one subculture only. When first induced, they die more rapidly than do sensitive strains. The survival time of mice infected with

in-vitro resistant strains is considerably increased by isoniazid treatment. G. pigs so infected and treated are almost completely protected.—W. R. Bett.

Knox, R., King, M. B. & Woodroffe, R. C. (1952). **In-vitro action of isoniazid on** *Mycobacterium tuberculosis*.—*Lancet*. 263, 854-858. 1447

The authors confirmed the American reports that isoniazid has a powerful inhibitory effect on *M. tuberculosis*—both the H 37 RV strain and strains freshly isolated from patients—in very low concentrations. Isoniazid-resistant strains were isolated *in vitro* without difficulty. —W. R. Bett.

Mitchison, D. A. (1952). **Titration of strains of tubercle bacilli against isoniazid.**—*Lancet*. 263, 858-860. 1448

Variations in the composition and pH of the medium, the heat-stability of the drug, the size of the inoculum, and streptomycin- and P.A.S.-resistance in the strains tested may influence any test for estimating sensitivity of strains of *M. tuberculosis* to isoniazid. Growth from the primary culture should be inoculated directly on to Löwenstein-Jensen slopes containing a range of isoniazid concentrations. —W. R. Bett.

Lack, C. H. & Tanner, F. (1953). **The significance of pleomorphism in** *Mycobacterium tuberculosis* **var.** *hominis*.—*J. gen. Microbiol.* 8, 18-26. [Abst. from authors' summary.] 1449

Under adverse conditions, *M. tuberculosis* may autolyse, or surviving cells may divide into progressively shorter cells which may even appear to be coccal. A complex life cycle was not observed, but the cells in which the cytoplasm had been reduced showed quantitative differences which the authors term 'regression'.

Marshak, A. (1951). **Differences in response of a virulent strain of the tubercle bacillus and its avirulent variant to metabolites and their genetic significance.**—*J. Bact.* 61, 1-16. 1450

The H37 Rv. strain of *M. tuberculosis* and its avirulent variant, H37 Ra differed in response to 16 different metabolites. The technique employed was described and results tabulated. With the exception of histidine, the amino acids which stimulated growth were those associated with the tricarboxylic acid cycle. Evidence was submitted for considering that the 2 strains differ by a single gene mutation.—G. V. Laugier.

Yanagisawa, K., Kanai, K., Shiga, Y. & Ito, F. (1951). **Biological properties of the paraffin oil extract of dried heat-killed B.C.G.**—*Jap. med. J.* 4, 87-98. [Abst. from abst. in *Bull. Hyg., Lond.* 27, 791. (1952).] 1451

This is a study of the toxic and antigenic properties of "paraffin oil" extract of heat-killed B.C.G. Maximum sensitivity to tuberculin was established in g. pigs in 2–4 months and was still present up to 8 months. In g. pigs inoculated i/p with the extract, tubercles were demonstrable in the liver and lungs at autopsy 3 weeks later.

Leahy, R. H. & Morgan, H. R. (1952). **The inhibition by cortisone of the cytotoxic activity of PPD on tuberculin-hypersensitive cells in tissue culture.**—*J. exp. Med.* 96, 549-554. [Authors' summary modified.] 1452

Using the roller tube method of tissue culture, it has been shown that cortisone and compound F inhibit the cytotoxic action of P.P.D. upon macrophages from the splenic tissue of tuberculous g. pigs. Pretreatment of the cells for 24 hours with hormones before exposure to P.P.D. was found to be essential. Oestrone and desoxycorticosterone glucoside had no protective activity. Certain advantages of the tissue culture method in studies of tuberculin hypersensitivity, and possible mechanisms and implications of this protective action of cortisone were discussed.

Wellmann, G. (1949). Die Übertragung des Schweinerotlaufs durch den Saugakt der gemeinen Stechfliege (*Stomoxys calcitrans*) und ihre epidemiologische Bedeutung. **[Transmission of swine erysipelas by** *Stomoxys calcitrans*.**]**—*Berl. Münch. tierärztl. Wschr.* No. 4. pp. 39-46. 1453

An account of work indicating that *Stomoxys calcitrans* is of practical importance in the transmission of swine erysipelas. The flies were able to carry infection from mice, liquid cultures, and the flesh of diseased pigs, transmitting it during feeding to healthy pigs, which later developed characteristic "diamond lesions" at the points where they had been bitten. The flies remained infectious for some time after contact with the diseased material.—R. Hadek.

Trbić, B. (1950). **[Sulphapyridine in experimental** *Erysipelothrix rhusiopathiae* **infection in mice.]**—*Vet. Glasnik.* 4, 357-360. [In Serbian.] 1454

Sulphapyridine was ineffective for the cure of artificial *E. rhusiopathiae* infection in mice. —I. Martini.

I. Hammer, D. (1951). Gewinnung und Eigenschaften der Bakteriophagen des Rotlaufbak-

teriums. [**Production and properties of bacteriophages of** *Erysipelothrix rhusiopathiae.*] —*Inaug. Diss., Munich.* pp. 68. **1455**

II. SCHARRER, E. (1952). Untersuchung von 100 Rotlaufbakterienstämmen aus dem Seuchengang 1950 auf ihre haemagglutinative Eigenschaft. [**Comparison of the haemagglutinating properties of 100 strains of** *Erysipelothrix rhusiopathiae.*]—*Inaug. Diss., Munich.* pp. 50. **1456**

III. FIEGE, H. (1951). Über die Varianten A, B und N von Erysipelothrix rhusiopathiae suis. [**Variants A, B and N of** *E. rhusiopathiae.*] — *Inaug. Diss., Munich.* pp. 31. **1457**

I. Scrapings from the tonsils and intestines of pigs were incubated in broth seeded with *E. rhusiopathiae,* after which the broth was centrifuged and filtered. Bacteriophages in the filtrate were tested for their effect on known pure strains of *E. rhusiopathiae* contained in broth and agar plates.

Six phages were isolated, of which 3 were non-specific, attacking both A and B strains, while the remainder attacked only B strains. Repeated passaging greatly enhanced the virulence of the phages, while small concentrations of urea, citrate or formalin inhibited their action; the presence of tryptophane was necessary to activate them.

II. Using both diluted and undiluted cultures S. recorded the agglutinating properties of 100 strains of *E. rhusiopathiae.* A commercial iodine compound (Jothomangan) and likewise vapour of ether, chloroform, and acetone had no effect on the agglutinating antigens.

All strains exerted a haemolytic action on blood in agar plates but pigs' blood was attacked more slowly and feebly than that of sheep or horses.

III. The acid-soluble, strain-specific antigens of *E. rhusiopathiae* are not found in certain strains known as 'N' strains. The author produced such an 'N' strain from an 'A' strain by 53 passages in mice, and was then able to restore the 'A' antigen by 7 passages in pigeons, further passages increasing the 'A'-antigen content even above the original level. Similar results were obtained with a 'B' strain.

These experiments confirm the view that 'N' strains are simply 'A' or 'B' strains which have lost their 'A' or 'B' antigens. Inoculation of 'N' strains into the skin produced little or no reaction, while 'A' strains in which the antigenic content was raised by passage in pigs exhibited a parallel increase in virulence as shown by the skin reaction.—A.S.

RADVILA, P. (1953). Hämagglutination, Autolyse und Immunisierungsvermögen von Schweinerotlaufbazillen. [**Haemagglutination, autolysis and immunizing capacity of** *Erysipelothrix rhusiopathiae.*] — *Schweiz. Arch. Tierheilk.* **95,** 33-44. [English, French and Italian summaries.] **1458**

R. investigated the haemagglutinating powers of 108 strains of *E. rhusiopathiae* in his search for strains suitable for use in adsorbate vaccines. Of these 97 did not agglutinate, four were inconsistent and the remaining 9, which agglutinated strongly and consistently, were uniformly successful in immunizing white mice.

The 9 agglutinating strains were spontaneously autolytic, in which respect they differed from the remainder; the power of agglutination decreased as autolysis progressed, though autolysed cultures, adsorbed on aluminium hydroxide, proved more effective in immunizing white mice than non-autolysed ones.

Strains which did not autolyse spontaneously could be dissolved by the addition of lysin from another strain. The lysin worked more effectively in acid than in alkaline solution. —A.S.

UTOJO, R. P. (1952). **On a new** *Pasteurella* **strain pathogenic to guinea pigs and isolated from hogs.**—*Hemera Zoa.* **59,** [In English; French, German and Indonesian summaries.] **1459**

The author considers that a strain of *Pasteurella* isolated from pigs differs in range of pathogenicity from *Past. suiseptica.* [A max. of 2 animals of each species was infected.] —A. SEAMAN.

DIERNHOFER, K. (1949). Haemophile Bakterien im Geschlechtstrakt des Rindes. [*Haemophilus citreus* **in the genital system of cattle.**] —*Wien. tierärztl. Mschr.* **36,** 582-588. **1460**

An account of the finding of *H. citreus* in inflammatory lesions of the genital mucosa of bulls, D. considering that it is a secondary infection complicating the lesions produced by a virus, no details, however, being given of this virus.—W. R. BETT.

GUTHRIE, J. E. (1952). **Nitrofurazone as a therapeutic agent in** *Salmonella choleraesuis* **enteritis of young pigs.**—*Vet. Med.* **47,** 307-314. **1461**

Nitrofurazone, 0·6 g./day, was effective in treating the necrotic enteritis which resulted from the oral administration of cultures of *S. cholerae-suis.*—E. A. GIBSON.

PLOUGH, H. H. (1950). **Radiation induced mutations in chemical requirements in** *Sal-*

monella typhimurium. — *J. cell. comp. Physiol.* **35,** Suppl. 1. 141-155. **1462**

In a study of the mutation produced by X-ray or u.v. radiation of a strain of *S. typhimurium,* mutations observed in order of frequency were:—smooth to rough; change in ability to utilize C compounds; certain amino acids inhibiting growth; inability to synthesise some amino acids.—F. T. W. JORDAN.

BATTELLI, C. (1951). Tifosi aviaria da S. gallinarum in fase mucosa. [*S. gallinarum* **in the mucous phase; infection in fowls.**]—*Atti. Soc. ital. Sci. vet.* **5,** 369-375. [English and French summaries.] **1463**

A strain of *S. gallinarum* with mucoid characters was isolated from 58 outbreaks of fowl typhoid in fowls, turkeys and guinea fowls in Foggia province, Southern Italy. The course of the disease was more severe than that caused by *S. gallinarum* in its normal phase.

—I. MARTINI.

COTTEW, G. S. (1951). **On methods for the isolation of salmonella from chickens.**—*Qd J. agric. Sci.* **8,** 120-126. [Author's summary modified.] **1464**

The efficiency of some selective media for isolating salmonella from chickens was investigated. From each of 268 birds the liver, lungs and intestinal mucosa and contents were cultured. These were sown on to direct plates of MacConkey bismuth sulphite and S.S. agar and into tetrathionate broth. *S. pullorum* was recovered most frequently from the lungs, while most isolations of other species of salmonella were made from the intestine.

KAUFFMANN, F. & HENNING, M. W. (1952). **Two new salmonella types** (*S. worcester* **and** *S. johannesburg*) **from South Africa.**—*Acta path. microbiol. scand.* **31,** 586-587. [In English.] **1465**

The authors described two new *Salmonella* types from S. Africa: *S. worcester,* having the antigenic formula: I,XIII, XXIII:m,t:e,n,x; and *S. johannesburg,* having the antigenic formula: I,XL:b:e,n,x.—F.E.W.

JOHN, A. T. & VINAYAGAM, V. S. (1952). **Effect of interrupted courses of chloramphenicol on relapse-rate in typhoid fever.**—*Lancet.* **263,** 757-759. [Authors' summary modified.] **1466**

Interrupted courses of chloramphenicol seem to give better results than do continuous courses in preventing relapses in typhoid fever in human beings. The relapse-rate is highest when the drug is withdrawn soon after the pyrexia has subsided, lower when it is continued for some days after clinical cure, but lowest when it is given in interrupted courses, being withdrawn soon after clin. cure and given again just before a relapse might be expected.

The average quantity of chloramphenicol used in interrupted courses is less than that used in continuous courses—an important consideration in the case of so expensive a drug.

IVANOV, A. D. (1952). [**Control of brucellosis in the U.S.S.R.**]—*Veterinariya, Moscow.* **29,** No. 5. pp. 13-22. [In Russian.] **1467**

It was claimed that by 1941 control of the disease was established in the U.S.S.R. After spreading again during the war it was largely stamped out in a comparatively short time and is now kept under control through hygienic methods of management and by regular inspections. Inapparent infection is still overlooked.

Standing Safety Orders against brucella infection have been promulgated.—F.A.A.

GWATKIN, R. & DZENIS, L. (1952). **Brucellosis. IV. Effect of hyaluronidase on the antigenicity of killed cultures of** *Brucella abortus* **in guinea pigs.**—*Canad. J. comp. Med.* **16,** 426-428. **1468**

The antigenicity of a killed suspension of *Br. abortus* was not enhanced by the addition of hyaluronidase when inoculated into g. pigs by various routes.—T. MOORE.

COLE, L. J. (1952.) **Suppression of colonial variation in** *Brucella abortus* **by metal-complexing compounds.** — *J. Bact.* **64,** 847-853. **1469**

In experiments in which smooth Strain 19 *Br. abortus* was cultured in the Gerhardt-Wilson medium normal variation in growth habit from smooth to rough was inhibited in the presence of certain "chelating" substances [substances forming non-ionic, non-polar complexes with many metallic ions]. The effect could not be explained in terms of a selective action of the medium on rough strains since these, when sown together with smooth strains, grew with an equal vigour. C. considered that Mg and Mn ions are involved in the metabolic changes which lead to the development of rough variants.—A.S.

BECKER, L. (1952). Auftreten von Schweinebrucellose in Mecklenburg. [*Brucella* **infection in swine in Mecklenburg.**]—*Mh. VetMed.* **7,** 296-300. **1470**

An acount of the diagnosis and control of an outbreak of abortion, attributed to *Br. suis,* in a large piggery.—ROY MACK.

LANKFORD, C. E., RODE, L. J. & SCHUHARDT, V. T. (1952). **Effect of methionine upon utilization of DL-homocystine by** *Brucella suis*.—*Proc. Soc. exp. Biol., N.Y.* **80,** 727-731. **1471**

dl-Homocystine is believed to be an intermediate metabolite in the *l*-cysteine, *l*-methionine biological reversible reaction, but it is not utilized as sole sulphur source by *Br. suis* unless traces of methionine are present.

—JOHN SEAMER.

BRAUN, W., KRAFT, M., MEAD, D. D. & GOODLOW, R. J. (1952). **The effect of penicillin on genetic changes and temporary modifications in populations of brucellae.**—*J. Bact.* **64,** 41-47. **1472**

Studies on media containing penicillin indicate that (1) increased alanine accumulation is associated with the establishment of non-smooth mutants in originally smooth populations of brucella, (2) some resistant brucella display non-smooth colonial and antigenic characteristics in the presence of penicillin and smooth characteristics in its absence.

—L. M. JONES.

BÜRKI, F. (1952). Der Goldhamster als Versuchstier für Leptospira canicola. [**The use of hamsters in** *L. canicola* **research.**]—*Z. Hyg. InfektKr.* **135,** 215-224. **1473**

Hamsters of 20 g. body wt. (3–4 weeks old) are preferable to older hamsters and to g. pigs of whatever age for *L. canicola* experiments. Death occurs 3–21 days after inoculation.

—J. E. SMITH.

PERCIVAL, R. C., LEAMING, J. D., MARTINI, F. V. & TONELLI, G. (1953). **Aureomycin in the treatment of experimental** *Clostridium chauvoei* **infection in sheep.**—*Cornell Vet.* **43,** 92-99. [Abst. from authors' summary.] **1474**

Aureomycin administered immediately following and 12 hours after infection protected 100% of the sheep treated; administration 24 hours post-infection resulted in 80% survival; in nontreated, infected controls there was a survival rate of 20%. The occurrence of severe lameness was prevented in 80% of those treated immediately after infection, and in 10% of those treated 12 hours post-infection; all control animals developed severe lameness.

GALE, D. & ELBERG, S. S. (1952). **Studies on enhancement of bacterial infection by hog gastric mucin.**—*J. infect. Dis.* **91,** 50-62. **1475**

Mucin hastened death in mice inoculated with small doses of tetanus toxin but delayed death in mice given large doses. Experiments using mucin and α-tocopherol with vital dyes suggested that they exert their effects by alteration of capillary permeability, formation of fibrin barriers, or leucocyte migration and supported the view that tetanus toxin is transported by blood and lymph.—E. G. WHITE.

ANDERSEN, A. A. (1952). **Effect of subtilin on spores of** *Clostridium botulinum*.—*J. Bact.* **64,** 145-149. **1476**

Eight cultures of *Cl. botulinum* and a putrefactive anaerobe were sensitive to low concentrations of subtilin in pork infusion medium.

—L. M. JONES.

LOWENTHAL, J. P. & LAMANNA, C. (1953). **Characterization of botulinal hemagglutination.**—*Amer. J. Hyg.* **57,** 46-59. [Authors' summary modified.] **1477**

Botulinal haemagglutinin is absorbed by numerous animal tissue elements other than r.b.c. The hypothesis that the toxic and haemagglutinating activities of type A botulinal preparations are properties associated with separable particles was confirmed. The two properties are independent of each other in alkaline solutions. In acid solution a complex of toxin and haemagglutinin is formed.

The uptake of botulinal haemagglutinin by r.b.c. and r.b.c. stromata appears to be an adsorption phenomenon. The presence of electrolytes is necessary.

Botulinal haemagglutination does not involve erythrocyte receptor sites for the influenza virus.

EASTERBROOKS, H. L. & PLASTRIDGE, W. N. (1953). **Vibriosis, its pathogenesis and management.**—*Vet. Med.* **48,** 63-64. [Authors' summary modified.] **1478**

Abortion, skipped heats (in many cases undetected abortion), and apparent delayed conception are the main clin. manifestations of vibriosis. The latter two are often more important than the first in reducing breeding efficiency and effecting the overall economy of the herd. Artificial insemination with streptomycin-treated semen and intra-uterine streptomycin treatment of problem cows and heifers are the two most important factors of seven presented which may aid in the control of vibriosis.

BORKOWSKA-TRIPPENBACH, B. & SZWEJKOWSKI, H. (1950). Moniliasis u drobiu. [*Candida* **infection in poultry.**]—*Proc. 2nd Meet. Polish Parasitol. Soc.* p. 105. [English summary p. 137; Russian summary p. 122.] **1479**

The authors reported several cases of *C. albicans* infection among turkeys and chickens. The fungus was present in both the yeast and

the mycelial phases. The authors described its biochemical properties. They suggested that the pathogenicity of the organism is due to a toxin secreted.—J. R. MITCHELL.

WEIDLICH, N. (1952). Aspergillusabort und -hautkrankheit bei einem Rinderfötus. [*Aspergillus* **causing abortion and a skin affection in a bovine foetus.**]—*Dtsch. tierärztl. Wschr.* **59,** 279-280. **1480**

A. fumigatus was isolated from skin lesions and viscera of a five-month bovine foetus.

—ROY MACK.

WATERSON, A. P. & WEDGWOOD, J. (1953). **Rat-bite fever. Report of a case due to** *Actinomyces muris*.—*Lancet.* **264,** 472-473. [Authors' summary modified.] **1481**

A case of rat-bite fever due to *Actinomyces muris* in man was described in which arthritis and a pustular rash were prominent features. The causal organism was isolated from a pustule in the skin. The response to penicillin was rapid and complete.

BISSET, K. A. (1953). **Do bacteria have mitotic spindles, fusion tubes and mitochondria?**—*J. gen. Microbiol.* **8,** 50-57. [Author's summary modified.] **1482**

Cytological studies upon species of *Bacillus, Bacterium* and *Mycobacterium* have shown that recent claims to have demonstrated true mitotic spindles, mitochondria and fusion tubes in these genera are based upon a misinterpretation of the basophilic growing points and septa commonly found in bacteria, and a misunderstanding of the multicellular structure of *Bacillus* and *Mycobacterium*.

TITUS, I. (1952). Bijdrage tot de kennis van het voorkomen van bacteriaemieën bij verschillende ziektetoestanden van de hond en de kat. [**Occurrence of bacteraemia in certain diseases of dogs and cats.**]—*Thesis, Utrecht.* pp. 197. [English, French, German and Indonesian summaries and conclusions.] **1483**

When 349 venous blood samples from 88 dogs and 16 cats in septic conditions and from 26 dogs on which enterectomy, cystotomy or tooth extraction had been performed, were cultured aerobically in saponin broth, liquoid (polyanethol sulphonic acid, sodium salt) broth and in Tarozzi medium, 39, 7 and 7% of the cases respectively yielded cultures, the following micro-organisms being isolated: streptococci, micrococci, *Bact. coli, Proteus mirabilis, Salmonella dublin* (dogs), *Pasteurella* [*multocida*?] (cats) and other aerobic Gram-negative rods. *S. dublin* was isolated from the blood of 4-month-old greyhound puppies with canine virus hepatitis. The results with saponin broth were significantly better than with liquoid broth and with liver broth. In one series there was a significant difference (up to 28·1%) between saponin and liquoid. There was no correlation between body temp., blood picture and positive cultures.

—C. A. VAN DORSSEN.

SHREWSBURY, J. F. D. & BARSON, G. J. (1952). **A bacteriological study of the house sparrow,** *Passer domesticus domesticus*.—*J. Path. Bact.* **64,** 605-618. [Authors' summary modified.] **1484**

An examination of the digestive and urogenital tracts of the house sparrow showed that the normal bacterial flora comprised Gram-positive cocci, Gram-negative non-sporing bacteria, and Gram-positive sporing bacilli of both aerobic and anaerobic types, the Gram-negative bacteria predominating. Apart from *B. anthracis* in the crops of 2 of the 196 birds examined, no human pathogens were found, and the authors did not consider the presence of *B. anthracis* to be of any significance in relation to the endemiology of human anthrax.

DE LAVERGNE, V. (1951). La maladie infectieuse. Microbes pathogènes; mécanismes et modalités de l'infection; applications au diagnostic et au traitement. [**Infectious diseases. Pathogenic micro-organisms. Mechanism and mode of infection. Diagnosis and treatment.**] pp. vi + 368. Paris: Masson et Cie. Fr. 2200. **1485**

This book sets out to present the essential facts of bacteriology and their application to human medicine and is directed to the bacteriologist and the clinician. There are no details of technique, nor illustrations: there are a number of references in the text to published work, mainly in French journals.

After a short introduction devoted to Pasteur's experiments on anthrax, the book is divided into four main sections: properties of bacteria and viruses; their modes of action; infectious diseases; and applications of bacteriology to diagnosis, prevention and treatment.

No attempt is made to deal with all aspects of the subject in any section: the author has selected certain topics which he considers of particular interest. Classification of bacteria, for example, occupies two thirds of a page and this is devoted mainly to somewhat nostalgic devotion to such terms as "Malta fever" or "the bacillus of Eberth", although it is admitted that some system of classification is not entirely without benefit, even for medical bacteriologists.

This book gives a general picture of bac-

teriology as applied to medicine, with emphasis on the contributions which French bacteriologists like Ramon, d'Herelle, Guillaumie, and many others have made. It is a readable book and a very personal one, more for the doctor than for the bacteriologist.—E. G. WHITE.

See also absts. **1714** (*Staph. aureus* in an abattoir); **1773** and **1775** (reports, Gt. Britain); **1776** (report, Canada); **1777** (report, Australia); **1779** (report, Belgian Congo).

DISEASES CAUSED BY PROTOZOAN PARASITES

TURTON, J. D. (1953). **An outbreak of *T. brucei* infection in polo ponies with spread apparently by biting flies other than *Glossina*.** —*Vet. Rec.* **65,** 11-12. [Abst. from author's summary.] **1486**

T. described an outbreak of *T. brucei* infection in polo ponies. He discussed the question of transmission by biting flies other than *Glossina*.

CHANDLER, R. L. (1952). **Comparative tolerance of West African N'dama cattle to trypanosomiasis.**—*Ann. trop. Med. Parasit.* **46,** 127-134. [Author's summary modified.] **1487**

A herd of cattle comprising eight N'damas, 12 N'dama-zebu cross-breds and 12 zebus, maintained under identical conditions and supported only by natural grazing, was exposed to the risk of natural infection from trypanosomiasis in Northern Nigeria. When the herd was exposed to a challenge from riverine tsetse considered to be about average for Northern Nigeria, 4 out of the 8 N'dama cattle remained apparently uninfected, four showed transient low-grade infections, and all 8 survived in good condition over an observation-period of 48 weeks. Of the 12 zebus and 12 N'dama-zebu cross-breds maintained in the same locality over the same period, all became infected, and nine zebus and four cross-breds died of trypanosomiasis.

In another locality, in which five N'dama cattle and six N'dama-zebu cross-breds were maintained under identical conditions and exposed to a severe trypanosome challenge from *Glossina morsitans* over a period of 28 weeks, all 5 N'damas remained uninfected and survived in good condition, whereas all the 6 cross-breds became infected and four died of trypanosomiasis.

Five N'dama cattle which had survived exposure to both riverine tsetse and *G. morsitans* were subsequently driven on the hoof a distance of about 100 miles under severe climatic conditions, but no evidence was obtained that their tolerance to trypanosome infection was thereby reduced. These 5 cattle were subsequently observed in a tsetse-free area for a period of 20 weeks, and, apart from a low-grade infection observed in one animal on 2 successive days, all remained in good physical condition and apparently free from infection.

The influence of trypanosome infection in early life on the degree of tolerance observed among cattle used in these experiments cannot be overlooked, but the indications are that the tolerance is more likely to be natural than acquired.

WILDE, J. K. H. & ROBSON, J. (1953). **The effect against *Trypanosoma congolense* in Zebu cattle of three new phenanthridine compounds.**—*Vet. Rec.* **65,** 49-51. [Abst. from authors' summary.] **1488**

Of three new drugs prepared by alteration of the quaternising group of dimidium bromide, tested in an experiment using 93 zebu cattle artificially infected with *T. congolense,* two were found to be good trypanocides and one of these, R.D.1572 (ethidium bromide) is considered worthy of further development for use in the field.

WOOLFE, G. (1952). **The trypanocidal action of phenanthridine compounds. I. Derivatives of dimidium with changed quaternizing groups.**—*Ann. trop. Med. Parasit.* **46,** 285-288. [Author's summary copied *verbatim.*] **1489**

Analogues of dimidium bromide in which the methyl quaternizing group is replaced by longer chains were tested for trypanocidal activity in mice. The ethyl, *n*-propyl and allyl compounds were found to be far more effective than dimidium bromide against *Trypanosoma congolense, T. brucei, T. gambiense* and *T. rhodesiense.* Activity declined with longer chains, until the *n*-hexyl compound was no more active than dimidium. The more active compounds were somewhat less toxic to mice than dimidium, and caused less tissue damage in rats. The ethyl, *n*-propyl and allyl compounds have been submitted for field trial against bovine trypanosomiasis.

DĘBSKI, J. (1950). O braku swoistego wiązania dopełniacza u świnek morskich zakażonych świdrowcem końskim. **[Lack of specific complement fixation in g. pigs infected with *T.***

equiperdum.]—*Proc. 2nd Meet. Polish Parasitol. Soc.* p. 84. [English summary p.133; Russian summary p. 119.] **1490**

The blood of infected g. pigs was examined microscopically for the presence of *T. equiperdum,* and then subjected to serological test. All cases were negative, proving that antibodies had not been produced.—J. R. MITCHELL.

ZOTTNER, G. (1952). Chimioprévention et chimiothérapie de la dourine au Maroc. **[Chemotherapy and prophylaxis of dourine in Morocco.]**—*Maroc méd.* **31,** 625-629. **1491**

Preventive injection is of particular importance for stallions during the breeding season, and a single inj. of 5 mg. of antrycide confers an immunity of 3 months: for this purpose a mixture of the methyl sulphate and the chloride is most suitable, though the sulphate alone is effective.

Curatively 5 mg. of the methyl sulphate per kg. body wt. is given in a single s/c inj. Horses treated in this way recover very quickly, and since 1949, when the method was introduced, no treated animals have relapsed.—A.S.

SANFILE, V. & ZAVAGLI, V. (1949). Procedimiento diagńostico en la tricomoniasis de los bóvidos. **[Diagnosis of bovine trichomoniasis.]**—*Rev. Fisiopat. Reprod. anim.* **2,** 17-26. **1492**

The authors found a c.f. test, details of which were given, to be successful in the diagnosis of trichomoniasis in cattle. They recommended the general adoption of the test, in conjunction with other methods.—A.S.

FEINBERG, J. G. (1952). **A capillary agglutination test for** *Trichomonas foetus.*—*J. Path. Bact.* **64,** 645-647. [Author's summary modified.] **1493**

A simple capillary technique was described for testing the agglutinating powers of rabbit antisera to *Tr. foetus.* It was carried out with minute quantities of sera, using a suspension of formolized organisms as antigen,and was read macroscopically. The test may be applicable to other organisms and other antisera.

KERR, W. R. & ROBERTSON, M. (1952). **Effect of ACTH, cortisone, sphingomyelin, sphingosine and phenergan (antihistamine) in inhibiting the skin reaction in cattle sensitized to** *Trichomonas foetus* **antigen.** — *J. Hyg., Camb.* **50,** 354-375. [Authors' summary modified.] **1494**

A.C.T.H., cortisone, sphingomyelin and sphingosine produce a delayed inhibition of the skin reaction in cattle sensitized to *Tr. foetus* antigen when they are injected i/m. The inhibition is greatest 6–9 hours after inj. of the inhibitor, but may sometimes be further delayed. This reaction is associated with an absolute lymphopenia of slightly variable duration.

N-acetylsphingosine retains the desensitizing effect of crude sphingomyelin and is of much the same potency as cortisone acetate.

The lymphopenia associated with the inj. of A.C.T.H. and cortisone occurs also with sphingosine, and these 3 substances are also alike in not producing the desensitizing effect until some hours after the inj.

Phenergan, a synthetic anti-histamine, has a different action, and its desensitizing effect appears to depend on a direct antagonizing of the oedema-provoking substance resulting from the junction of antibody and antigen (hapten) and takes effect apparently as soon as the injected drug itself is present at the site of the inj. of the specific testing fluid.

The authors described methods of testing the capacity of the hormones and drugs to prevent the skin reaction locally and to nullify the action of the *in vitro* antigen-antibody mixtures which can produce a reaction in normal animals.

Phenergan alone of the substances dealt with had any power to act locally. Phenergan mixed with the antigen-antiserum complex *in vitro* prevents the formation of the characteristic swelling in a normal animal. Phenergan mixed with the specific testing fluid prevents the development of the skin reaction when the mixture is injected i/d into a sensitive animal.

Cortisone and sphingosine do not have this action.

ZAVAGLI, V. (1950). Diffusione e danni economici della trichomoniasi bovina in Italia. **[Incidence of and losses caused by bovine trichomoniasis in Italy.**—*Zooprofilassi.* **5,** 196-203. **1495**

The disease appears to be most widespread in the northern districts especially in Piedmont, Lombardy, Tre Venezie and Emilia, economic losses being most severe in Lombardy and Emilia.—L. BADIALI.

ANON. (1950). Convegno internationale per lo studio della trichomoniasi del bestiame. **[International meeting for the study of animal trichomoniasis.]** — *Zooprofilassi.* **5,** 97-124. **1496**

At this third session held in Rome in the autumn of 1949, Florent gave a brief account of the clin. examination of the sex organs, and critically discussed various lab. diagnostic tests for trichomoniasis, including microscopic examination, serological reactions, and the tricine

test described by Kerr and Robertson. Corrias and Bass reported on the complement-fixation test.—L. BADIALI.

PELI, I. (1950). La fecondazione artificiale nella profilassi della trichomoniasi. [**Artificial insemination in the prevention of** *Trichomonas* **infection.**] — *Zooprofilassi.* **5**, 191-196. **1497**

P. discussed the difficulty of controlling trichomoniasis. He considers that rational application of A.I. is the only method of eradicating the disease.—L. BADIALI.

VEREERTBRUGGHEN, W., VANDEPLASSCHE, M. & PAREDIS, F. (1952). **The treatment of trichomoniasis in bulls.**—*Rep. IInd Int. Congr. Physiol. anim. Reprod., Copenhagen,* 1952. **2**, 132-142. [In English. French and German summaries.] **1498**

Trichomoniasis was cured in 26 out of 30 bulls by one treatment consisting of washing of the penile mucosa with warm 0·1% trypaflavine followed by the application of boviflavine ointment (diaminomethylacridine 0·5%, 2-methyl amino-chinolylcarbamide HCl 0·5%). Three of the remaining bulls were clear after 2 treatments. —JAS G. O'SULLIVAN.

HAMMOND, D. M., FITZGERALD, P. R., BINNS, W. & MINER, M. L. (1953). **The efficacy of bovoflavin salve in the experimental treatment of trichomoniasis in bulls.**—*Cornell Vet.* **43**, 121-127. [Authors' summary copied *verbatim.*] **1499**

Ten bulls infected with *Trichomonas foetus* were treated with bovoflavin salve. Six were cured with one treatment, three were cured with two treatments, and one was not cured with two treatments. In one treated bull preputial samples were negative for a period of about 4 months after treatment, but the bull was found to be still infected by a test breeding 6 months after treatment.

KELLY, D. R. & SCHNITZER, R. J. (1952). **Experimental studies on trichomoniasis. II. Immunity to reinfection in** *T. vaginalis* **infections of mice.**—*J. Immunol.* **69**, 337-342. [Abst. from authors' summary.] **1500**

Marked immunity towards an i/m re-infection with *Tr. vaginalis* was observed in mice previously infected with live trichomonad culture in the leg of the opposite side. Immunizing infections with a dose of 125,000 parasites are necessary to produce immunity within a 2-week period. After an immunizing dose of 500,000 parasites per mouse immunity towards re-infection was observed after one week; it lasted 10 weeks and decreased only slightly after 15 weeks. The presence of a well developed trichomonad abscess seemed essential for the immunity, the mechanism of which warrants further investigation.

MCGUIRE, W. C. & MOREHOUSE, N. F. (1952). **Chemotherapy studies of histomoniasis.**—*Poult. Sci.* **31**, 603-609. [Authors' summary slightly modified.] **1501**

4-nitrobenzenearsonic acid, when administered in the feed of turkeys at 0·0125% to 0·075%, or in the drinking water at 0·006% to 0·04% was found highly effective for the prevention of mortality from histomoniasis during the medication period, when medication was started 3 days before infection. There was a 30·5% relapse mortality following the termination of medication. A standard testing procedure comprising a 21-day medication period and 30 days of post-medication observation was described. The importance of observing experimentally infected turkeys used for chemoprophylactic studies for some time following the termination of medication was discussed.

Data were presented which indicated that 4-nitrobenzenearsonic acid possessed growth stimulating properties when administered in the feed to turkey poults at the non-toxic histomonostatic dosage range of approx. 0·01% to 0·03%.

GRUMBLES, L. C., BONEY, W. A., JR. & TURK, R. D. (1952). **Chemotherapy of enterohepatitis of turkeys. I. The value of 2-amino-5-nitrothiazole in prevention and treatment. II. The effect of 2-amino-5-nitrothiazole and 2-acetylaminonitrothiazole on egg production fertility, and hatchability in turkey hens.**—*Amer. J. vet. Res.* **13**, 383-385 & 386-387. [Authors' summaries and conclusions modified.] **1502**

I. Data are presented on the value of 2-amino-5-nitrothiazole medication in preventing and treating enterohepatitis (blackhead) in turkeys under simulated field conditions. Nine hundred and fifty birds separated into groups of 50 each were used in this test. 2-Amino-5-nitrothiazole, given continuously in an all-mash ration at the concentrations of 0·05, 0·04 and 0·03%, was effective in preventing mortality from enterohepatitis. Concentrations of 0·02 and 0·01% reduced mortality but were not sufficient to give a desired degree of protection.

Under the conditions of this experiment, 2-amino-5-nitrothiazole was apparently of little value in overcoming enterohepatitis when medication was started after the disease had broken out in a flock.

II. Data are presented on the toxic effects of 2-amino-5-nitrothiazole and 2-acetylamino-nitrothiazole when given to laying turkey hens continuously in the ration for 18 weeks. Each drug level studied was administered to 30 turkey hens separated into 3 pens of 10 birds each. At a conc. of 0·1%, 2-amino-5-nitrothiazole reduced egg production, fertility, and hatchability, but a conc. of 0·05 or 0·03% had no effect. As used in this study, 2-acetylaminonitrothiazole apparently did not have toxic effects.

PERRY, T. G. (1952). **Canine coccidiosis: diagnosis and therapy with coccithane.**—*Vet. Med.* **47**, 221-228 & 241. **1503**

Of 106 cases of canine coccidiosis examined, 90% were acute, 7% peracute and the remainder, mostly in mature dogs, were chronic. The condition responded well to coccithane (diphenthane 70) in doses of 2 g./lb.

—JAS. G. O'SULLIVAN.

MOORE, E. N. & BROWN, J. A. (1952). **A new coccidium of turkeys, *Eimeria innocua* n. sp. (Protozoa: Eimeriidae).**—*Cornell Vet.* **42**, 395-402. [Authors' summary modified.] **1504**

A new species of turkey coccidium, *E. innocua*, was isolated and identified. Single-cell isolation techniques were employed in establishing pure "cultures" of this species. It is subspherical in shape and has no inclusion bodies. The average size of the sporulated oocysts is 22·41 by 20·86 μ, the range in length being 18·57 to 25·86 μ, in width 17·34 to 24·54 μ.

The sporulation time was less than 48 hours at room temp. and the prepatent period about 114 hours. Poults infected with a single dose of sporulated oocysts shed oocysts up to 114 days after the prepatent period. Poults under 5 weeks of age when infected with massive doses of sporulated oocysts failed to exhibit symptoms of infection. Droppings remained well formed and free from blood and mucus. No gross lesions were observed even in heavy infections. Tissue invasion was confined to the villi of the small intestine, with most damage occurring near the tips of the villi.

Coccidium-free chicks, guinea fowl, pheasants, and quail when fed sporulated oocysts of *E. innocua* failed to become infected. Turkeys solidly immunized to *E. innocua* were successfully infected with *E. dispersa*. Likewise, poults solidly immunized to *E. dispersa* were successfully infected with *E. innocua*.

HINSHAW, W. R. (1952). **Coccidiosis vaccine.** —*Vet. Med.* **47**, 429-430. **1505**

A suspension of live oocysts of *E. tenella* was fed to 3-day-old chicks and after 13 days they were given a sulphonamide to prevent the outbreak of acute coccidiosis. The majority of the chickens developed immunity in 17 days.

—JAS. G. O'SULLIVAN.

EYLES, D. E. (1951). **Studies on *Plasmodium gallinaceum*. I. Characteristics of the infection in the mosquito, *Aedes aegypti*.**—*Amer. J. Hyg.* **54**, 101-112. **1506**

Oocyst and gametocyte numbers were related. Certain chickens were more infective to mosquitoes than others. In *A. aegypti*, sporozoites reached the salivary glands in numbers proportionate to the oocyst numbers.

—JAS. G. O'SULLIVAN.

GAGLIANI, M. (1949). Ulteriori osservazioni sulla biologia del Pl. gallinaceum. **[Further observations on the biology of *Pl. gallinaceum*.]**—*Sicilia Medica, Palermo.* **6**, 217-220. **1507**

Six chickens each weighing approx. 280 g. and 5 each weighing approx. 800 g. were given an i/m dose of 0·3 ml. of fowl blood having about 70% of the red cells parasitized by *Pl. gallinaceum*. Av. incubation time for the 2 groups was 6 and 7·2 days respectively, the peak being reached after about 13 days with 81·93 and 36·8% of parasitized red cells respectively. Further experiments with 48 fowls gave similar results.—E.G.

RODHAIN, J. (1950). Sur la pluralité des espèces de *Babesia* des rongeurs. A propos de la spécificité de *Babesia rodhaini* van den Berghe & al. **[Plurality of species of *Babesia* in rodents.]**—*Ann. Inst. Pasteur.* **79**, 777-785. **1508**

R. discussed briefly the history of the Babesiidae species in rodents and described transmission trials with *B. rodhaini*. He discussed the specificity of the Babesiidae and emphasized the need for further transmission experiments to establish their interrelationship.

—J.D.

LANGELER, J. E. T. (1952). De praemunisatie tegen piroplasmose en anaplasmose van enige uit Nederland geïmporteerde jonge fokstieren. **[Premunization against piroplasmosis and anaplasmosis of imported breeding bulls in Surinam.]**—*Tijdschr. Diergeneesk.* **77**, 204-213. [English and Spanish summaries.] **1509**

An account of premunization against both *Babesia bigemina* and *Anaplasma marginale* by s/c inj. of citrated blood from zebu calves with latent infection with both parasites into 5 young Friesian bulls, imported into Surinam. Manifest

infection with *B. bigemina* developed 5–7 days after inoculation and manifest infection with *A. marginale* commenced after 22–25 days. The premunization process took about 2½ months. During the months of acclimatization the animals contracted pustular eczema of the anal region (this was treated with penicillin), interdigital paronychia and *Trichophyton* infection.
—C. A. VAN DORSSEN.

MACHADO, A. V. (1949). Estudo preliminar sôbre a ocorrência de reticulócitos na anaplasmose e piroplasmose. [**The occurrence of reticulocytes in anaplasmosis and piroplasmosis.**]—*Rev. Fac. Med. vet., S. Paulo.* **4,** No. 1. pp. 185-196. **1510**

In 4 Friesian cows during immunization against tick fever the reticulocyte count 41 days after inoculation with *Anaplasma* and *Babesia* was 2·5 per hundred erythrocytes rising to 7 per hundred on the 49th day and then decreasing. This was seen when anaplasmosis developed but not in the case of babesiasis. M. suggested that reticulocyte counts and corpuscular volume estimation should be done in routine immunization.—JAS. G. O'SULLIVAN.

I. FANKHAUSER, R. (1951). Toxoplasmose beim Hund. [*Toxoplasma* **infection in the dog.**]—*Schweiz. med. Wschr.* **81,** 336-338. **1511**

II. VIVELL, O. & BUHN, W. H. (1952). Über eine Toxoplasmoseepidemie in einem Tierstall mit kleinen Laboratoriumstieren. [**Epidemic of toxoplasmosis in laboratory animals.**]—*Z. Hyg. InfektKr.* **135,** 298-306. **1512**

III. BAMATTER, F., SUTER, E., LEUENBERGER, M. & ROTH, W. (1948). Demonstration über tierexperimentelle Untersuchungen mit Toxoplasma. [**Experimental research on** *Toxoplasma.*]—*Schweiz. Z. allg. Path.* **11,** 531-538. **1513**

IV. WIESMANN, E. & BRUNNER, T. (1952.) Zur Toxoplasmose in der Schweiz. [**Toxoplasmosis in Switzerland.**] — *Ibid.* **15,** 418-426. **1514**

I. F. examined the literature of 40 proven and suspected cases of toxoplasmosis in dogs, and after comparison with his own experience produced a comprehensive description of symptoms. He noted that to the present time this infection has been met with only in bitches.

II. An epidemic of toxoplasmosis among laboratory rats and g. pigs. The authors considered that the infection might have been introduced by newly-purchased rabbits, and transmitted accidentally to others when rectal temperatures were taken. The g. pigs might have contracted the infection when they were kept for a period in the same cages with the rabbits.

III. G. pigs injected intracerebrally or intraperitoneally with *Toxoplasma* died within 6 and 8 days respectively: artificially infected 12-day chick embryos developed within 5 days lesions containing numerous toxoplasms. It was suggested that infection in lab. animals might be diagnosed by a clin. examination of the retina of the eye, a technique which is successful in medical practice.

IV. Patients and blood-donors at Swiss hospitals were subjected to serological tests for toxoplasmosis. There were few positive reactors, and these were for the most part patients with eye complaints or disorders of the c.n.s. Positive reactions, however, were not a definite proof of infection since non-specific reactions could be found in uninfected patients with dysfunction of the liver or blood-forming tissues. Infected rodents and dogs were the principal sources of infection for man.—A.S.

OTTEN, E., WESTPHAL, A. & KAJAHN, E. (1951). Zur Epidemiologie der Toxoplasmose. Der Hund als Infektionsquelle des Menschen. [**Epidemiology of toxoplasmosis. The dog as a source of infection of man.**]—*Klin. Wschr.* **29,** 343-346. **1515**

Dogs play an important part in the epidemiology of toxoplasmosis as a source of infection. The authors gave figures which suggest that the percentage of infected dogs in Hamburg is 2–5.—W. R. BETT.

JACOBS, L., MELTON, M. L. & JONES, F. E. (1952). **The prevalence of toxoplasmosis in wild pigeons.**—*J. Parasit.* **38,** 457-461. **1516**

Of 80 wild pigeons examined, toxoplasms were demonstrable microscopically or serologically in 9, but only one bird was positive by both methods. Explanations are offered for the lack of agreement in the methods of diagnosis.
—JAS. G. O'SULLIVAN.

ATCHLEY, F. O. (1952). **Notes on** *Leucocytozoon andrewsi* **from the domestic chicken.**—*J. Parasit.* **38,** 497-498. **1517**

Attempts to increase the level of infection by screening the pens, by supplying continuous light, or by splenectomy failed. *Anopheles quadrimaculatus, A. crucians, Aedes aegypti* and *Culex quinquefasciatus* were eliminated as vectors.—JAS. G. O'SULLIVAN.

CHERNIN, E. (1952). **The relapse phenomenon in the** *Leucocytozoon simondi* **infection of the domestic duck.**—*Amer. J. Hyg.* **56,** 101-118. **1518**

The relapse phenomenon in this disease was

studied in naturally infected young ducks kept under experimental conditions. Relapse was observed to be associated with developing sexual maturity in both males and females, and with a very low level of parasitaemia, especially of immature parasites.—F. T. W. JORDAN.

ADAM, K. M. G. (1951). **The quantity and distribution of the ciliate protozoa in the large intestine of the horse.**—*Parasitology*. **41**, 301-311. [Abst. from author's summary.] **1519**

A method was described for separating and enumerating the ciliate Protozoa of the large intestine of the horse. The conc. of ciliates varied, being low in the caecum and highest in the left dorsal colon. Two distinct populations of ciliates occurred in the large intestine, one from the caecum to the pelvic flexure and the other from the pelvic flexure to the rectum. This discovery agreed with earlier findings by Strelkow (1939) whose classification of the ciliates was referred to in the paper.

SUGDEN, B. & OXFORD, A. E. (1952). **Some cultural studies with holotrich ciliate protozoa of the sheep's rumen.**—*J. gen. Microbiol.* **7**, 145-153. [Authors' summary slightly modified.] **1520**

In a suitable buffer at 39°C. the life of all 3 spp. of holotrich ciliates of the sheep's rumen can be extended for one or more days by addition of glucose, fructose, galactose, sucrose, cellobiose, raffinose, inulin, bacterial levan, salicin or melibiose (the least effective). Mannose, glucosamine or galactosamine are definitely toxic in that they greatly shorten protozoan life. This toxic effect is observed even in the presence of glucose. *Isotricha prostoma* and *I. intestinalis*, but not *Dasytricha ruminatium*, will ingest vegetable starch of small grain size, *e.g.* rice starch, thereby prolonging protozoan life.

The nitrogenous requirements of these protozoa are best met by whole grass juice, which extends the life of the culture for several weeks; and even the ethanolic precipitate from boiled and cleared grass juice is a better nitrogenous suppl. than cleared rumen liquor. The ash from this alcoholic precipitate will definitely extend protozoan life in absence of nitrogenous supplement. The effect is probably due to a 'trace' metal, which is not Zn, Fe, Sn, Sr, Mn, Cu or Ni, but may be Ti, Mo, Cr, Co or V. The holotrich ciliates here studied do not ingest lactobacilli, either when starved or when in an actively motile state after addition of glucose to the medium.

HEALD, P. J. & OXFORD, A. E. (1953). **Fermentation of soluble sugars by anaerobic holotrich ciliate protozoa of the genera *Isotricha* and *Dasytricha*.**—*Biochem. J.* **53**, 506-512. [Abst. from authors' summary.] **1521**

Suspensions of virtually bacteria-free and starved holotrich ciliates separated from sheep's rumen contents, containing *Isotricha prostoma*, *I. intestinalis* and *Dasytricha ruminantium*, produced acids and gas at a rapid rate under anaerobic conditions from the following soluble carbohydrates: glucose, fructose, sucrose, raffinose, inulin, rye-grass levan and, to a much lesser degree, cellobiose. No other soluble carbohydrate was attacked. Glucose was not attacked in presence of oxygen. The relatively high concentration of streptomycin used to kill bacteria associated with the Protozoa had little effect upon the viability or fermentative activity of the latter. The fermentation products from glucose were lactic, acetic, propionic (traces) and butyric acids, carbon dioxide and hydrogen. Soluble nitrogenous compounds, which were not ammonia, urea or amino-acids, were also produced. The importance of these ciliates as fermentative agents in the rumen was discussed.

BARBARO, A. D'A. (1952). Sensibilità ai sulfamidici delle popolazioni ciliate del rumine di ovini, *in vitro*. [**Sensitivity *in vitro* of rumen Infusoria of sheep to sulphonamides.**]—*Zootec. Vet., Milano*. **7**, 20-24. [English summary.] **1522**

Various sulphonamides exert a lethal effect *in vitro* on ciliates (Infusoria) from the rumen of sheep. The dilutions used varied from 0·20 to 0·020%, in glucose water; the ciliates became motionless between the 6th and the 48th hour from the beginning of the exposure.

—I. MARTINI.

See also absts. **1776** (report, Canada); **1779** (report, Belgian Congo); **1780** (book, parasitology).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

FUNES, E. S. (1952). Investigaciones sobre purificación del antigeno fijador del complemento del virus aftoso. [**The purification of antigen for the complement-fixation test in foot and mouth disease.**]—*Gac. vet., B. Aires*. **14**, 157-168. [German summary.] **1523**

F. compared experimentally several methods of purifying antigen material for the

c.f. test; freezing was the simplest and quickest method, having the advantage of raising the antigen titre, possibly because the cells are ruptured during freezing.—A.S.

SCHNEIDER, B. (1950). Über weitere Varianten der Typen A und B des Maul- und Klauenseuchevirus unter besonderer Berücksichtigung des Seuchenzuges 1948/49 in Westdeutschland. **[Further variants of the A and B types (French O and A types) of the virus of foot and mouth disease.]**—*Berl. Münch. tierärztl. Wschr.* No. 3. pp. 47-48. **1524**

During the 1948-49 outbreak virus type O was detected 126 times and type A 68 times, from samples sent for examination. Further serological work, done also with virus strains from other European countries, revealed two O variants—O_1 and O_2. A new A variant—A_4 was identified from the German material. The serological behaviour of the variants was given in tabular form. During the outbreak the O and A variants retained their respective identities though they were present in the same district. It is considered that the stock O or A vaccines are active against infection by O or A variants, but that the period of protection is probably shorter than normal.—J. EDWARDS.

WALDMANN, O. & PETERMANN, H. G. (1951). Variaciónes del virus de la fiebre aftosa. **[Variations in the foot and mouth disease virus.]** — *Gac. Vet., B. Aires.* **13,** 219-224. **1525**

Within the 3 types of F. & M. disease virus there exist strains of different pathogenicity, and new strains are constantly appearing. The authors suggest the institution in affected countries of national centres for typing strains from outbreaks in the field. On such a basis effective vaccines could be prepared and control could be rendered more rapid and effective.—A.S.

SÁNCHEZ-VALVERDE Y LACORTE, M. (1952). La presencia del virus A_5 en la actual epizootia de fiebre aftosa de la cuenca de Pamplona. **[Type A_5 foot and mouth disease virus in Spain.]**—*Bol. Cons. Col. vet. Esp. Supl. cient.* **6,** 253-256. **1526**

An outbreak of F. & M. disease caused by virus A_5 in the Pamplona valley was effectively controlled by homologous vaccine.—A.S.

ROTTGARDT, A. A. & GARCÍA PIRAZZI, A. J. (1952). Resultados obtenidos con la vacuna antiaftosa a coloide de tapioca (Vacuna T. C.) **[A tapioca formol vaccine for foot and mouth disease.]**—*Gac. vet., B. Aires.* **14,** 177-182. [English conclusions.] **1527**

The authors found tapioca virus-formol vaccine to compare favourably with that prepared with aluminium hydroxide. I/d doses of 2 ml. and s/c doses of 10 ml. were equally satisfactory.—A.S.

I. ROTTGARDT, A. A. (1952). Coloide de tapioca. **[Colloidal tapioca as an adjuvant in foot and mouth disease vaccine.]**—*Gac. Vet., B. Aires.* **14,** 99-101. [English summary.] **1528**

II. ROTTGARDT, A. A. (1952). Preparacion de la vacuna antiaftosa usando como estimulante el coloide de tapioca. **[Preparation of foot and mouth disease vaccine using colloid tapioca as an adjuvant.]**—*Ibid.* 102-106. [English summary.] **1529**

I. A 20% suspension of tapioca is sterilized by autoclave and mixed with slightly more than an equal amount of horse, sheep or cattle serum. It is then digested in the serum for 10–15 days, being kept in motion by a mechanical shaker. When allowed to settle the mixture deposits a sediment which upon desiccation over sulphuric acid yields a white powder with excellent adjuvant properties. It is unaltered by heating to 120°C. for 30 min., is resistant to dilute sodium carbonate, and will readily dissolve colloidally in a saline solution.

II. A suspension of tongue epithelial tissue from infected cattle is mixed with an equal amount of colloidal tapioca solution. After 72 hours at 25°C. the resultant vaccine may be stored for many months between 2° and 5°C. without loss of potency.—A.S.

FORREST, G. E. & COLE, E. A. (1952). Desaparicion del formaldehido en vacunas antiaftosas adsorbidas que contienen germenes. **[The effect of bacterial contamination on the formalin content of foot and mouth disease adsorbate vaccine.]**—*Gac. Vet., B. Aires.* **14,** 107-114. [English and German summaries.] **1530**

The authors noted the disappearance of formol from vaccines naturally or artificially contaminated with *Alcaligenes viscosus,* the formol being exhausted after 48–72 hours according to its concentration. They have not yet studied the effects of this action on the immunizing properties of the vaccine. *A. viscosus* was not the only micro-organism present in the vaccines, and from many samples *Staphylococcus albus* and *Staph. aureus,* haemolytic and non-haemolytic species of *Streptococcus,* and *Bacillus subtilis* were isolated, the latter being found in nearly every sample.—A.S.

SCHNEIDER, B. & EISSNER, G. (1952). Vergleichende Immunisierungsversuche an Meer-

schweinchen gegen Maul- und Klauenseuche mit Meerschweinchen- und Rindervirus-Adsorbatvakzinen. **[Foot and mouth disease immunization experiments on g. pigs with g. pig and bovine virus adsorbate vaccines.]**—*Mh. prakt. Tierheilk.* **4,** 491-495. **1531**

Both g. pig and bovine virus vaccines proved capable of immunizing g. pigs against experimental F. & M. disease. The protective power of the former was, however, somewhat superior.—G. P. MARSHALL.

SCHANG, P. J. (1951). Los portadores de virus en relación con los planes de inmunización antiaftosa. **[Carriers of infection in foot and mouth disease in relation to immunization.]** —*Gac. Vet., B. Aires.* **13,** 229-231. **1532**

S. asserted, on the basis of experiment, that carriers are extremely rare and for practical purposes non-existent. Since this is basic to the problem of immunization he suggested that experiments like his own should be carried out officially on a large scale.—A.S.

STROZZI, P. & WAKEHAM, A. (1952). La stomatite vescicolare in Perù. Importanza della sua diagnosi sierologica. **[Vesicular stomatitis in Peru.]**—*Clin. vet., Milano.* **55,** 120-125. **1533**

Vesicular stomatitis is present in Peru; the c.f. test has proved to be a reliable method for the prompt identification of the responsible "Indiana" strain.—I. MARTINI.

HANSON, R. P. (1952). **The natural history of vesicular stomatitis.**—*Bact. Rev.* **16,** 179-204. **1534**

Information on the distribution, dissemination and perpetuation of vesicular stomatitis virus has been collected from obscure reports, regional periodicals, questionnaires sent to animal disease control officials as well as from scientific literature. Although vesicular stomatitis does not appear in the U.S.A. every year, reports indicate that it is endemic in semitropical America. The occasional outbreaks in the Middle Western States indicate that the virus can travel north from the reservoir of infection by movement of infected cattle along sales routes and/or migration of reservoir animals. The seasonal incidence, the ecological limitation and the rapidity and manner of spread suggest that insect vectors may be involved.

—L. M. JONES.

MERLEN, R. H. A. (1952). **Aoeski disease** [Aujeszky's disease.]—*Brit. vet. J.* **108,** 441-443. **1535**

This annotation of the Russian literature described the nervous symptoms seen in affected pigs, sheep, cattle and cats. Pigs usually exhibit ataxia and epileptiform fits, although a few develop a dull form with progressive paralysis. Sheep exhibit a period of reflex excitability followed by depression and incoordination. There is usually an intense pruritus. Similar symptoms were described in a heifer. P.M. findings were described, together with the experimental transmission of the disease to lab. animals.—E. A. GIBSON.

TORRI, E. (1950). Segnalazione di un caso di rabbia in una bovina e considerazioni etioprofilattiche sulla infezione rabida nel comune della Spezia. **[A case of rabies in a cow.]**—*Zooprofilassi.* **5,** 344-351. **1536**

A cow bitten by a rabid dog developed progressive paralysis of the digestive and locomotory systems one month later. The animal was destroyed and autopsy revealed the presence of Negri bodies in the hippocampus. T. discussed the recrudescence of rabies in dogs in Italy during the immediate post-war years and described the control measures evolved by the local authorities.—L. BADIALI.

SCHANG, P. J., RODRIGUEZ LOUSTAU, J. A. & RIZZO, H. R. (1951). Preparación de suero antirrábico con virus de rabia paralítica de los bovinos. Control comparado con distintas especies y técnicas varias. **[Preparation of rabies immune serum using virus from cases of bovine paralytic rabies.]**—*Rev. Fac. Agron. B. Aires.* **13,** 20-25. [English and French summaries.] **1537**

Experiments to compare the effectiveness of anti-rabies sera produced in horses, sheep and rabbits injected with bovine paralytic rabies virus were described.—A.S.

WOLMAN, M. & BEHAR, A. (1952). **A cytochemical study of the nature of Negri bodies.**—*J. infect. Dis.* **91,** 69-71. [Authors' summary slightly modified.] **1538**

In white mice injected intracerebrally with street rabies virus the following consecutive changes were found. Within one day of injection minute, basophilic, Feulgen-positive inclusions were noted. These inclusions subsequently grew in size,often became embedded in a Feulgen-negative matrix, and increased in number. From the sixth day, a progressively increasing proportion of inclusions became amorphous, eosinophilic and Feulgen-negative. The Feulgen-positive inclusions were also positive for alkaline phosphatase and cholinesterase, and weakly positive for lipase. The decrease of these reactions paralleled the decrease in basophilia and Feulgen positivity.

The findings are considered to corroborate the assumption that inclusion bodies represent virus particle aggregates in which the virus particles multiply up to a certain limit, and then diminish in number.

VAN TONGEREN, H. A. E. (1952). **Spontaneous mutation of cowpox-virus by means of egg-passage.**—*Arch. ges. Virusforsch.* **5,** 35-52. [In English.] [Author's summary modified.] **1539**

A report of the spontaneous mutation of cow pox virus during serial egg passage. Comparison of the mutant and the parent strain provided evidence of the effect of mutation upon the biological activity of the cow pox strain. The suggested name of "cow pox-vaccinia" for the mutant is based on the character of the gross and microscopic lesions produced in the chorio-allantoic membrane of the chick embryo. Preliminary experiments suggest that "cow pox-vaccinia" may be used in the immunization of cattle against genuine cow pox and perhaps in man against smallpox.

HJÄRRE, A., DINTER, Z. & BAKOS, K. (1952). Vergleichende Untersuchungen über eine influenzaähnliche Schweinekrankheit in Schweden und Shopes Schweineinfluenza. **[Comparative study of a virus pneumonia of pigs in Sweden resembling influenza, and the American type of swine influenza described by Shope.]**—*Nord. VetMed.* **4,** 1025-1045. [In German. English and Swedish summaries.] **1540**

The authors compared Shope's American swine influenza with an enzootic virus pneumonia of Swedish pigs formerly thought to be caused by an influenza virus. The two were quite different, Shope's virus producing macroscopic changes in the lungs after 2 days while the Swedish virus required 12 days. Shope's virus could readily be isolated from the lungs up to 5 days after infection in the chick embryo, but the Swedish virus could not be isolated under these conditions. Antibodies produced by pigs infected with Shope's virus, while effective against that virus, were ineffective against the Swedish one.—A.S.

KOZIŃSKI, A. W. & WALKOWSKA, E. (1952). Modyfikacja odczynu zahamowania hemaglutynacji Hirsta wyłaczajaca nieswoiste inhibitory. **[A modification of Hirst's haemagglutination-inhibition test which removes non-specific inhibitors.]**—*Med. dośw. mikrob.* **4,** 95-104. [English summary.] [Abst. from abst. in *Bull. Hyg., Lond.* **27,** 974-975. (1952).] **1541**

When influenza virus is allowed to react with serum for a prolonged period at room temp. non-specific inhibitors are gradually removed by the enzymic action of the virus; the authors have made use of this effect in a method for treating sera before use in the haemagglutination-inhibition titration of specific antibody. Four haemagglutinating units of virus were added to 2-fold dilutions of serum and the mixtures were incubated at 37°C. for 3 hours, after which r.b.c. were added and the inhibitor titre read in the usual way; a parallel test was also carried out by the usual procedure, in which the r.b.c. were added to the virus-serum mixtures immediately. Sera from 19 normal rabbits mostly showed considerably lower inhibitor titres after incubation with PR8 or Lee viruses. Human sera collected during an inter-epidemic period showed a wide variation in antibody titre as measured by the standard test, whereas the virus incubation method gave titres with a much smaller range of variation.

PORTERFIELD, B. M. (1952). **The effect of calcium and electrolytes on the enzymic action of influenza viruses and *V. cholerae* extract.**—*Brit. J. exp. Path.* **33,** 196-201. **1542**

The enzymic action of influenza virus on r.b.c. was unaffected by the absence of calcium ions which had been removed by an ion exchange resin, but the activity of the receptor destroying enzyme (RDE) of *V. cholerae* was greatly reduced by decalcification. The calcium requirement of RDE was directly proportional to the anion concentration of the medium.

—A. ACKROYD.

SCHMIDT, J. R. & RASMUSSEN, A. F., JR. (1952). **Inhibitory effect of cobaltous ions on multiplication of influenza virus.**—*Proc. Soc. exp. Biol., N.Y.* **81,** 244-246. [Authors' summary modified.] **1543**

The growth of the influenza virus in embryonated eggs was inhibited by cobaltous ions. This inhibition could be overcome by the subsequent addition of histidine, cysteine and sodium thioglycolate.

EATON, M. D. (1952). **Observations on growth of virus and the energy-yielding activities of the host cell.**—*Arch. ges. Virusforsch.* **5,** 53-72. [Author's summary modified.] **1544**

Tissue culture techniques were applied in studies on the growth of animal viruses. Results with substances which inhibit influenza virus in tissue cultures were summarized and possible modes of action considered; the effects were reversible and did not result from death of the tissue or inactivation of the virus. Studies on

the mode of action of aromatic diamidines on influenza virus were presented in some detail. Dintriophenol, a substance which uncouples phosphorylation from oxidation temporarily interfered with the growth of influenza virus in chorioallantoic membrane tissue without affecting respiration. Growth of influenza virus was found to be dependent on depletable substances in tissue and on glucose in the medium. The latter could be partially replaced by pyruvate. The possible dependence of virus growth on readily available sources of energy and on the transfer of energy by phosphorylation was discussed. Interference with the synthesis of high energy phosphate by the host cell was considered as a possible explanation of the local inhibition of viral growth by a variety of substances.

JORDAN, R. T. & DUFFY, C. E. (1952). **Interference between St. Louis encephalitis virus and western equine encephalomyelitis virus along a neuronal pathway.**—*J. infect. Dis.* **91,** 165-172. [Authors' summary modified.] **1545**

St. Louis encephalitis virus instilled intranasally into rats protected 50% of them against subsequent infection with Western equine encephalomyelitis virus inoculated by the same route. St. Louis encephalitis virus introduced in this way did not, however, protect rats against Western equine encephalomyelitis virus injected intracerebrally. The data suggested that St. Louis encephalitis virus, having progressed from the olfactory mucosa to the c.n.s. of rats by the olfactory route, "interfered" with the subsequent passage of Western equine encephalomyelitis virus along the same route.

I. HURST, E. W., PETERS, J. M. & MELVIN, P. (1952). **The action of mepacrine and trypan red in a number of virus diseases.**—*Brit. J. Pharmacol.* **7,** 473-481. **1546**

II. HURST, E. W., MELVIN, P. & PETERS, J. M. (1952). **The prevention of encephalitis due to the viruses of Eastern equine encephalomyelitis and louping-ill: experiments with trypan red, mepacrine, and many other substances.** —*Ibid.* 455-472. [Absts. from authors' summaries.] **1547**

I. This paper described chemotherapeutic experiments with mepacrine against 21 viruses in mice, rabbits, or chickens. Against most viruses the action of trypan red was also observed, and against Rift Valley fever of a number of acridines and other compounds.

The following diseases were beneficially affected to some extent by mepacrine when treatment was begun before or soon after infection: Western equine encephalomyelitis, Rift Valley fever, herpes febrilis, lymphocytic choriomeningitis, St. Louis encephalitis; with the last two some evidence of a possible weak therapeutic effect of a single large dose of mepacrine given late in the infection was obtained. The weaker prophylactic effects in respect to lymphocytic choriomeningitis and St. Louis encephalitis were easily obscured if too "virulent" a virus were used for infection.

Trypan red reduced mortality in herpes febrilis and doubtfully in psittacosis.

Three acridine compounds showed slight activity against Rift Valley fever.

The unique properties of mepacrine among the acridines were discussed.

II. Mepacrine, certain bis-azo dyes, and other substances containing in the molecule many sulphonic-acid groups, and some other drugs and macromolecules are able in varying degree to protect mice from nervous involvement by equine encephalomyelitis or louping-ill virus given intramuscularly. By far the most active substance is mepacrine. The action is always prophylactic; no action is seen when the drugs are administered after the nervous infection has become established.

The active substances all appear to be taken up by the cells of the reticulo-endothelial system, which is probably the chief site of multiplication outside the nervous system of the viruses under consideration. The macromolecular substances merely delay the appearance of virus in high titre in the blood stream, and trypan red has comparatively little effect on titre. Mepacrine, however, markedly inhibits the growth of equine encephalomyelitis virus and greatly reduces the titre in the blood, even though *in vitro* it does not inactivate virus; there is thus less virus available to invade the nervous system.

Mepacrine also influences the course of events when virus is inoculated intracerebrally. This action is, however, weaker and may be swamped by too "virulent" a virus or too large a dose.

Possibly because mepacrine is tolerated in smaller doses in the sheep than in the mouse, and because louping-ill is less easy to influence than is equine encephalomyelitis, no beneficial effect of mepacrine was noted against louping-ill in lambs.

LEVI-CASTILLO, R. (1952). **The problem of human and equine encephalomyelitis in Ecuador.**—*Acta trop., Basel.* **9,** 77-80. [In English.] **1548**

Human and equine encephalomyelitis is a real public health problem in Ecuador. The causative virus is the Venezuelan strain, which

is virulent and highly neurotropic. Nothing has been done so far to control the disease.

—W. R. Bett.

Lübke, A. (1953). Der Ausfall der Xanthoproteinreaktion bei der Virusanämie des Pferdes. **[The xanthoprotein reaction in equine infectious anaemia.]**—*Dtsch. tierärztl. Wschr.* **60,** 79-80. **1549**

This test was deemed unsuitable for diagnostic purposes.—Roy Mack.

Domański, E., Dobrowolska, D. & Zalewska, E. (1951). Zjawisko anemii przy niedokrwistości zakaźnej koni. **[The phenomenon of anaemia in equine infectious anaemia.]**—*Polsk. Arch. Weteryn.* **1,** 317-344. [English and Russian summaries.] **1550**

A short account of E.I.A. written as a possible aid to diagnosis. The cause of diminution of erythrocytes is haemolysis and failure of the bone marrow, resulting in haemolytic and aplastic anaemia. Simultaneously in the acute, subacute and chronic forms the haemoglobin index rises. In the acute form the bone marrow shows characteristic changes in contrast to the peripheral blood. Enlargement of the lymph nodes is very characteristic of the chronic form.

—J. R. Mitchell.

Doll, E. R. (1952). **Seasonal incidence and fetal age in equine virus abortion.**—*Cornell Vet.* **42,** 505-509. **1551**

Of 357 virus abortions confirmed between 1938-52, 65% occurred during the 9th and 10th months, 29% in the 8th and 11th months. The yearly peak was in February.

—C. C. Bannatyne.

Doll, E. R. (1953). **Intrauterine and intrafetal inoculations with equine abortion virus in pregnant mares.**—*Cornell Vet.* **43,** 112-121. [Author's summary modified.] **1552**

A procedure for direct inoculation of the uterus or foetus of pregnant mares with the equine abortion virus was described. The direct inoculations caused 100% abortions, regardless of the immune state of the mare. The equine abortion virus remained viable for 457 days when frozen at −18°C. The virus was not inactivated by penicillin and streptomycin.

Datta, S. & Dhanda, M. R. (1951). **The latest methods evolved for the control of rinderpest and the problem of its eradication from India.** —*Indian vet. J.* **27,** 416-422. **1553**

The authors compared the prophylactic value of various vaccines for active immunization against rinderpest. They consider lapinized vaccine to be most suitable for mass immunization in India. It confers a good grade of immunity; produces a minimum reaction in all breeds of cattle, buffaloes, sheep and goats; has good keeping qualities; and is cheap and easy to administer. They outlined a scheme for compulsory vaccination of all susceptible animals by which they envisage that the disease could be totally eradicated from the country in 5–10 years.—M. S. Menon.

Piercy, S. E. (1953). **Studies in bovine malignant catarrh. III. The effect of storage and temperature on the viability of virus.**—*Brit. Vet. J.* **109,** 59-65. [Author's summary modified.] **1554**

Attempts were made to preserve the virus of bovine malignant catarrh by storage at temperatures ranging from ±5°C. to −60°C., and by desiccation, lyophilization and "shell-freezing" in dry ice and alcohol: none of these methods prolonged the viability of virus for more than a few days. The best result was obtained with citrated blood which was still infective after 7 days' storage at ±5°C. The results indicated that the actual process of freezing, whether induced by dry ice and alcohol, lyophilization or "deep-freeze" machines, is injurious to the virus.

Clara, I. (1951). Influenza bovina. **[Three-day fever in cattle in Italy.]**—*Atti Soc. ital. Sci. vet.* **5,** 423-427. [English and French summaries.] **1555**

In an outbreak of cattle influenza, some animals had diarrhoea and secondary pneumonia, in addition to the general symptoms. The disease could be transmitted very easily by injection of filtered blood serum collected in the first phase of the infection.—I. Martini.

McIntosh, B. M., Haig, D. A. & Alexander, R. A. (1952). **Isolation of viruses associated with epididymitis and vaginitis of cattle.** [Correspondence.]—*J. S. Afr. vet. med. Ass.* **23,** 165-166. **1556**

Virus isolated from an infected heifer was propagated in mice and chick embryos. Passaged virus produced vaginitis in cattle.

—Ian Davidson.

Brash, A. G. (1952). **First outbreak of scrapie reported in New Zealand.**—*N.Z. J. Agric.* **85,** 305-306. **1557**

Scapie has occurred among sheep which had been imported from England. Immediately after diagnosis, these sheep and all in-contact sheep were slaughtered.—G. B. S. Heath.

FRANCIS, J. (1952). **Chemotherapeutic response of the organism causing enzootic abortion in ewes.**—*J. comp. Path.* **62,** 214-219. **1558**

The virus causing enzootic abortion in ewes responds to antibiotics, sulphonamides, and *p*-aminobenzoic acid in chick embryos in the same way as do those of the psittacosis-lymphogranuloma group. F. concluded that chemotherapy is unlikely to play a major part in controlling enzootic abortion in ewes.

—G. B. S. HEATH.

LITTLEJOHN, A. I., FOGGIE, A. & MCEWEN, A. D. (1952). **Enzootic abortion in ewes. Field trials of vaccine. I.**—*Vet. Rec.* **64,** 858-862. **1559**

HEPPLE, J. R. (1952). **Enzootic abortion in ewes. Field trials of vaccine. II.**—*Ibid.* 862-863. [Abst. from authors' summaries.] **1560**

I & II. Descriptions of controlled field trials of a vaccine against enzootic abortion, conducted in 110 flocks in S.E. Scotland from 1949-52, and in 9 flocks in Northumberland from 1950-52. Vaccination shortly before service reduced the incidence of abortion in the first pregnancy following vaccination, and still further in the second, irrespective of revaccination before this pregnancy.

MCINTOSH, B. M. (1952). **The propagation of African swine fever virus in the embryonated hen's egg.**—*J. S. Afr. vet. med. Ass.* **23,** 217-220. [Author's summary modified.] **1561**

The propagation of African swine fever virus through 12 passages in embryonated hen's eggs is described. Eight day old embryos were used and passage was carried out by inj. of dead embryo material into the yolk sac. Reincubation of the eggs was at 33°C. The infection in eggs resulted in embryo mortality, usually on the 7th day after inj. Typical virulent swine fever was produced in pigs with egg material of the 3rd and 6th passage.

PRATT, D. W. (1952). **A study of postvaccinal (hog cholera) losses.**—*Amer. J. vet. Res.* **13,** 526-530. [Abst. from author's summary.] **1562**

Typically affected pigs from Illinois herds that suffered heavy post-vaccinal losses revealed gross lesions of septicaemia at autopsy. Blood and other tissues collected at P.M. examination were injected into pigs susceptible to swine fever; susceptible pigs that simultaneously received protective doses of antiserum and pigs previously given antiserum and swine fever virus. Results indicated the presence of virus in each inoculum.

Two brands of commercial swine fever antiserum and virus were used in cross-immunization pig inoculation tests. Field use of one of the brands had been followed by considerable post-vaccinal loss. The viruses produced fatal illness in all but one unvaccinated pig, but failed to produce noticeable effect when injected into pigs that had been previously vaccinated. Moreover, all simultaneously treated pigs remained healthy, indicating that each antiserum provided protection against each of the viruses.

FORTNER, J. (1952). La maladie de Teschen. **[Teschen disease.]**—*Bull. Off. int. Epiz.* **38,** May. pp. 106-116. [English summary.] **1563**

F. dealt generally with the known characters of the virus and of the disease.

For experimental infections he preferred the intranasal route with which he succeeded in infecting 349 of 362 pigs; he described in some detail the course of the disease thus induced.

In Germany the use of vaccines and sera against Teschen disease is prohibited, and the disease is controlled by slaughter of all pigs on infected premises, and rigorous disinfection.

—J. T. DONE.

ELEK, P. & KERTAY (KERBLER), N. (1951). Versuche zur Ausarbeitung einer Schutzimpfungsmethode gegen die ansteckende Schweinelähmung. **[Methods of immunization against Teschen disease.]**—*Acta vet. hung.* **1,** 367-382. [In German. Russian summary.] **1564**

Experiments with vaccines prepared from brain and spinal cord suspensions in either glycerin or physiological saline and inactivated with 0·3–0·8% formalin were described. Vaccine prepared from glycerin-suspended virus material and inactivated with 0·5% formalin stored for 105 days at freezing point was just as effective as freshly prepared vaccine and more effective than active virus without preservatives. Two s/c inj. containing 1 g. of nervous tissue conferred a satisfactory immunity, whereas single inj. containing 2 g. of the material did not. Immunity developed after about 11 days and lasted for at least 6 months. The vaccine was not suitable for piglets less than 6 weeks old.—E.G.

I NIJLAND, G. J. (1952). **"Hard pad disease".**—*Tijdschr. Diergeneesk.* **77,** 501-506. [English summary.] **1565**

II. TEUNISSEN, G. H. B. (1952). **"Hard pad disease".**—*Ibid.* 507-510. **1566**

III. VAN DEN AKKER, S. (1952). **"Hard pad disease".** — *Ibid.* 511-514. [English summary.] **1567**

I. In an outbreak of hard pad disease in

the autumn of 1951, dogs of all ages were affected; many cases were fatal. Most animals had been previously vaccinated against distemper [no precise figures given]. Symptoms were purulent rhinitis,conjunctivitis, pneumonia, enteritis, cystitis, vomiting, nervous symptoms, encephalitis, and hyperkeratosis. In many cases there was a slow onset with only slight fever. After some days high fever 39·2°–41°C. developed. No effect was seen of treatment with sulphamethylpyrimidine, chloramphenicol, aureomycin, terramycin, acetanilide, antallergan, "phemitone", phenobarbitone sodium and the usual styptics and expectorants. The effect of hard pad disease serum (Burroughs-Wellcome) was only slight.

II. T. stated that he observed this condition as early as 1934 and that during and after the second world war it was a not uncommon disease in the Netherlands. He denied the unfavourable influence of sulphonamides.

III. The author examined P.M. 10 dogs that died in the outbreak described by Nijland (I *supra*). Histological examination of the nervous system revealed nuclear inclusions in the glia and ependymal cells in all cases, but no perivascular cuffing and no meningitis.

—C. A. VAN DORSSEN.

LINDGREN, N. O. (1951). Studier över cytoplasmatiska inklusioner vid valpsjuka hos hund. **[Cytoplasmic inclusions in dog distemper.]**—*Nord. Vet.-Med.* **3**, 403-424. [In Swedish. English and German summaries. Abst. from English summary.] **1568**

In 40 of 60 dogs that had died of distemper it was possible to demonstrate P.M. specific acidophile cytoplasmic inclusions in the mucosae of the trachea and the urinary bladder. In no case were these found in the non-distemper cases (73 cases). Nor had any dog which had been vaccinated by the Laidlaw-Dunkin or Green method inclusions. Clinical diagnosis may be possible by examining smears from nasal, vaginal or urethral mucosa for inclusion bodies.—H. BOYD.

CABASSO, V. J, STEBBINS, M. R. & COX, H. R. (1953). **Active immunization of ferrets by simultaneous injections of avianized canine distemper vaccine and anticanine distemper hyperimmune serum.**—*Cornell Vet.* **43**, 179-183. [Authors' summary modified.] **1569**

An experiment in ferrets is reported, demonstrating that active immunity against distemper can be obtained by the simultaneous injection of an egg-adapted, modified canine distemper virus and its homologous hyperimmune antiserum. [The duration of immunity was not tested beyond 30 days.]

GILLESPIE, J. H., ROBINSON, J. I. & BAKER, J. A. (1952). **Dual infection of dogs with distemper virus and virus of infectious canine hepatitis.**—*Proc. Soc. exp. Biol., N.Y.* **81**, 461-463. [Authors' summary copied *verbatim*.] **1570**

Following inoculation of distemper virus and infectious canine hepatitis virus singly and mixed, it was found that the mixture of viruses produced a more severe type of illness than either virus alone. In the same dog, both viruses were present in the blood during the acute phase of illness, inclusion bodies of both viruses were found and immunity against both viruses developed.

SEIBOLD, H. R. & BAILEY, W. S. (1952). **An epizootic of hepatitis in the dog.**—*J. Amer. vet. med. Ass.* **121**, 201-206. [Authors' summary modified.] **1571**

An epizootic of a specific type of hepatitis of undetermined aetiology occurred among dogs in the South-East during the winter of 1951-52. Data from 31 cases were summarized. The disease varied from acute or subacute to chronic; most of the cases studied succumbed at a subacute stage of the disease, the characteristic clin. symptoms being anorexia, loss of vigour, and icterus with absence of fever. P.M. examination revealed icterus, different shades of yellowish, reddish yellow, or greenish yellow discoloration of the liver, and haemorrhage in various tissues and into the gastro-intestinal lumen. Histopathological examination of the liver revealed a combination of damaged parenchyma, regenerating parenchyma, and proliferation of the small bile ducts.

The results of a limited number of animal inoculation tests with material from affected dogs failed to warrant conclusions on the transmissibility of the disease.

MCSHERRY, B. J. & SMITH, D. L. T. (1953). **Hematological changes noted in three dogs experimentally infected with the virus of infectious canine hepatitis.**—*Cornell Vet.* **43**, 104-109. [Abst. from authors' summary.] **1572**

A leucopenia due to neutropenia and lymphopenia developed on the second day following infection. These changes were associated with mild clin. symptoms and an increase in body temp. After the sixth day a leucocytosis with lymphocytosis developed. There was a marked increase in immature lymphocytes.

During this period of compensation the animals appeared well and their temp. remained normal.

SCHYNS, P. & FLORENT, A. (1951). **Does the pigeon play any part in spreading fowl pest amongst poultry?**—*Off. Rep. 9th World's Poult. Congr., Paris.* **3**, 14-17. **1573**

Infection did not pass between pigeons and chickens kept together in small cages except when pigeons were given virus intranasally.

—K. G. TOWERS.

CULZONI, F. (1949). Studio istopatologico delle lesioni ulcerative nella pseudopeste. **[Histopathological study of ulcerative lesions in Newcastle disease.]**—*Atti Soc. ital. Sci. vet.* **3**, pp. 316-327. [French and German summaries.] **1574**

P.M. examination and histopathological study at the University of Parma of numerous fowls that had died of N.D. revealed constant and typical lesions of the mucosae of the larynx, trachea, proventriculus, gizzard and intestines. Seven photomicrographs were reproduced.

—L. BADIALI.

BONADUCE, A. (1950). Contributo alla profilassi della pseudo-peste dei polli. Ricerche sul valore della prova di Hirst applicata alla identificazione degli animali guariti di pseudopeste, perciò probabili contaminatori. **[Prophylaxis of Newcastle disease. Application of the Hirst test to recovered fowls that may be carriers.]**—*Clin. vet., Milano.* **73**, 263-270. **1575**

In serological tests on 100 fowls that had recovered from N.D., haemagglutination-inhibiting antibodies were demonstrable at an average titre of 1:640–1:1,280 and 1:2,560 (minimum 1:80, max. 1:5,120).—L. BADIALI.

SLONIM, D. & STRAŇÁKOVÁ, V. (1952). Laboratorní infekce člověka virem newcastleské nemoci drůbeže. **[Laboratory infection of man with the virus of Newcastle disease.]**—*Čas. Lék. čes.* **91**, 264-265. [Abst. in *Bull. Hyg., Lond.* **27**, 708. (1952), copied *verbatim.* Signed: D. J. BAUER.] **1576**

The eye of a laboratory worker was accidentally contaminated with a 1/160 dilution of allantoic fluid infected with a strain of Newcastle disease virus isolated by the authors in Prague in 1951. No treatment was carried out and 36 hours later signs of infection appeared, with conjunctival injection, lachrymation and enlargement of the pre-auricular and submandibular lymph glands. On the 4th day after infection the condition began to recede and by the 8th day the conjunctiva was normal. The other eye was not affected. Virus was isolated by the allantoic inoculation of eggs with secretion collected 10 hours after the onset of symptoms, and was identified by haemagglutination-inhibition tests with antiserum to the Prague strain. No antibodies were found in serum specimens taken from the patient on the 1st, 10th and 30th days after the appearance of symptoms.

KASCHULA, V. R. (1952). **Studies on the heat stability of the haemagglutinin of various strains of Newcastle disease virus.**—*J. S. Afr. vet. med. Ass.* **23**, 110-116. [Abst. from author's summary.] **1577**

The difficulties of differentiating the introduced American Roakin and the Israeli Haifa N.D. virus strains from wild South African strains were discussed and a method in use, based on virulence for fowls and pigeons, was mentioned. Comparisons of the heat stability of the haemagglutinin at 56°C. of the 2 introduced strains and several typical S. African strains indicated that the heat stability of different batches of virus varies considerably and as readings are not constant and therefore unpredictable, this test is of no value in differentiating strains. The inhibition of haemagglutination of heated haemagglutinins by negative serum has been demonstrated, but it is of no value in differentiating strains.

BORNSTEIN, S., RAUTENSTEIN-ARAZI, A. & SAMBERG, Y. (1952). **Some aspects of congenital passive immunity to Newcastle disease in chicks. I. The transfer of hemagglutinin inhibitors from the maternal yolk to the chick. II. The relationship of maternal hemagglutination-inhibition titers in baby chicks to their actual immunity.**—*Amer. J. vet. Res.* **13**, 373-378 & 379-382. [Authors' summaries and conclusions modified.] **1578**

I. The haemagglutination-inhibition (H.I.) titres of egg yolks are a reliable quantitative index of the serum titres of the hens laying them. Both titres were almost identical, within range of experimental error.

Haemagglutinin-inhibiting antibodies were not found in saline-liver suspensions nor in allanto-amniotic fluids of developing embryos the yolks of which contained significant amounts of them. The maternal yolk titre remained constant during incubation, and the serum titre of the embryo did not ascend at its expense. Significant H.I. embryonic serum titres appeared only near hatching time, except when the maternal titres were very high. At hatching time, serum titres of chicks had reached only

$\frac{1}{8}$ to $\frac{1}{4}$ of their highest value, which generally is reached at 2–3 days of age. This peak value does not necessarily equal the maternal titre and may be significantly lower. Chicks of a given dam have a quantitatively specific titre for each stage of their development, and this titre seems to be constant as long as the maternal titre does not change.

II. Chicks with congenital passive immunity appear refractory to i/m vaccination; however, the same chicks vaccinated with an identical dose by nasal instillation seem to develop infection and a subsequent satisfactory immunity, as indicated by high H.I. titres and resistance to intranasal challenge exposure.

ELLIS, P., BRANDLY, C. A. & HANSON, R. P. (1952). **The influence of triethylene glycol aerosol on the growth, morbidity and mortality rates of a broiler flock.**—*Poult. Sci.* **31,** 394-398. **1579**

Neither inhalation of the aerosol nor the presence of the aerosol in the drinking water had any ill effect on the growth of the chicks. There was some evidence that it reduced the spread of Newcastle disease. The optimal conditions for satisfactory action, *viz.*, proper humidity, control of dust and an adequate concentration of the vapour, may be difficult to achieve under farm conditions.—D. LUKE.

KASCHULA, V. R. (1952). **The isolation of an unknown virus from the intestines of chickens.**—*J. S. Afr. vet. med. Ass.* **23,** 88-92. [Abst. from author's summary.] **1580**

The virus, which was isolated on the chorioallantoic membrane of embryonating eggs was obtained from the intestinal tracts of chicks with stunted chick disease. A general description of the disease and of the isolated virus was given. Attempts to reproduce the disease artificially with the virus in day-old chicks were inconclusive. The virus was not pathogenic for mice, g. pigs, rabbits or pigeons.

WOOLLAM, D. H. M. & MILLEN, J. W. (1953). **An anatomical approach to poliomyelitis.**—*Lancet.* **264,** 364-367. [Authors' summary copied *verbatim.*] **1581**

A new experimental technique has been used for studying the fate of particles injected into the subarachnoid space of newborn rats. The implications which the results of these experiments have on the pathology and therapy of poliomyelitis are discussed.

WEIGLE, J. J. & DELBRÜCK, M. (1951). **Mutual exclusion between an infecting phage and a carried phage.**—*J. Bact.* **62,** 301-318. **1582**

In multiple phage infection experiments on induced *Bact. coli,* strain K12, with their normally carried phage λ and T5, the exclusion of page λ occurred when the bacteria were infected with T5 at an advanced stage of the maturation of phage λ. Mutual exclusion must involve some mechanism other than the establishment of a barrier to penetration.

—A. ACKROYD.

CAIRNS, H. J. F. (1950). **Intracerebral inoculation of mice: fate of the inoculum.** [Correspondence.]—*Nature.* **166,** 910-911. **1583**

Following intracerebral inoculation of mice with bacteriophage, less than 10% of the inoculum remained in the cranium; 15% of the inoculum, irrespective of size, appeared in the veins of the neck within one min. of inoculation. The total inoculum was recoverable from the whole body by the use of a Waring blendor.

—JOHN SEAMER.

HAIG, D. A. (1952). **Note on the use of the white mouse for the transport of strains of heartwater.**—*J. S. Afr. vet. med. Ass.* **23,** 167-170. [Author's summary copied *verbatim.*] **1584**

It has been shown that the causal organism of heartwater fever will survive for periods up to 90 days after injection intraperitoneally into mice. Nine serial alternating passages between sheep and mice were made, but in spite of numerous efforts, it was not found possible to carry the strain through two generations of mice. From this it would seem that the organism does not multiply in the mice but merely survives for long periods. On the other hand, however, it was found that there was apparently an incubation period in the mice during which time the organism could not be demonstrated by injection of mouse spleens into sheep.

Spleen from infected sheep was apparently a more satisfactory source of virus than blood.

The finding that the organism will survive long periods in mice has been used to transport strains of heartwater over long distances.

CAPORALE, G. & GAMBACURTA, P. (1950). Ruolo degli animali nell'insorgenza di un focolaio de febbre Q umana. **[The role of animals in Q fever in man.]**—*Nuova vet.* **26,** 81-89. **1585**

An account of serological investigation on 11 cattle and 6 sheep following an outbreak of Q fever in human beings. Two of the cattle and one sheep gave positive reactions to the c.f. test and *R. burneti* was isolated from the milk of two cattle and two sheep, in g. pigs and chick embryos.—L. BADIALI.

STOKER, M. G. P. & THOMPSON, J. F. (1953). **An explosive outbreak of Q fever.**—*Lancet.* **264,** 137-139. [Authors' summary copied *verbatim.*] **1586**

In an explosive outbreak of Q fever in South Kent, 13 out of 15 people living on a dairy farm contracted the disease, 1 child had a subclinical infection, and 1 was not tested. There were 3 other cases among 9 visitors to the farm. Epidemiological findings and laboratory tests did not suggest that the cows were the reservoir of infection. Although there was some evidence pointing to pigs as the source, it was not possible to confirm this in the laboratory.

PAVILANIS, V., LEPINE, P. & MORISSET, N. (1952). **The presence of Q fever complement-fixing antibodies in sera of inhabitants of the Province of Quebec.**—*Canad. med. Ass. J.* **66,** 333-334. [Abst. from authors' conclusions.] **1587**

4·6% of the residents of Quebec examined had Q fever antibodies in high titre (1:32 and higher); 10·5% (considered as doubtful) had titres of 1:8 and 1:16. More children than adults gave positive reactions.

MONACI, V. & SCLAUSERO, G. (1951). Episodio epidemico di febbre Q nel personale di una conceria. [**Q fever epidemic in a tannery.**]—*Bol. Ist. sieroter., Milano.* **30,** 232-235. [English summary modified.] **1588**

The authors described an epidemic of Q fever in the staff of a skin and hide tannery at Milan. C.f. tests on the sera of 7 affected patients gave positive (1:8) or negative reactions in the first days of the disease; an increase of the titre was observed during convalescence (from 1:64 to 1:512). After 6 months complement-fixing antibodies (1:32–1:128) were still present in the sera of 5 patients out of 5 tested.

STONE, J. D. & ADA, G. L. (1952). **Electrophoretic studies of virus-red cell interaction: relationship between agglutinability and electrophoretic mobility.**—*Brit. J. exp. Path.* **33,** 428-439. [Authors' summary slightly modified.] **1589**

The relationship of electrophoretic mobility and agglutinability of erythrocytes treated with viruses of the influenza group or with the "receptor destroying enzyme" (RDE) of *V. cholerae* was investigated by two methods. The majority of these viruses falls in a single group in showing only one type of enzymic action.

The viruses of Newcastle disease and swine influenza as well as RDE have an additional action which probably belongs to the same enzyme but is directed against a different substrate.

All agents act to characteristically different levels on the first substrate, and a similar gradient exists also for the second, the latter being $SW < NDV < NDV_p < RDE$. Evidence is presented that those agents which act on both substrates do so simultaneously.

The theoretical implications of the results are discussed.

POLLARD, M., ENGLEY, F. B., JR., REDMOND, F., CHINN, H. I. & MITCHELL, R. B. (1952). **Infra red absorption spectra of viruses.**—*Proc. Soc. exp. Biol., N.Y.* **81,** 10-11. [Authors' summary slightly modified.] **1590**

Infra red absorption spectra were determined of meningopneumonitis, ornithosis, mumps and Newcastle disease viruses. The spectra of mumps and N.D. are each distinctly different from that of meningopneumonitis and ornithosis, whereas the spectra of the latter two agents seem to indicate a close interrelationship.

HILLEMAN, M. R., HAIG, D. A. & HELMOLD, R. J. (1952). ***In vivo* and *in vitro* studies of serological specificity among viruses of the psittacosis - lymphogranuloma venereum group.**—*J. Immunol.* **68,** 121-129. **1591**

Viruses of the psittacosis-lymphogranuloma group cannot be differentiated by means of the direct or indirect complement-fixation test, the conglutination complement-absorption test or the haemagglutination-inhibition test. The serum neutralization test in mice is specific.

—LOIS JONES.

See also absts. **1679** (hypertrichosis in F. & M. disease convalescents); **1773** (report, Gt. Britain); **1776** (report, Canada); **1779** (report, Belgian Congo).

IMMUNITY

GORRILL, R. H. & HOBSON, D. (1952). **The properties of complement.** — *Bull. Hyg., Lond.* **27,** 1-10. **1592**

In this review, an outline is given of the methods used in the isolation of the 4 components of complement with an account of their properties and role in haemolysis and of the techniques for fractionating complement and specifically inactivating components 3 and 4. All 4 components of complement are essential

and must be present in certain proportions for the haemolysis of sensitized cells, but there are both qualitative and quantitative differences between the haemolytic complement of different species of animals so that not all components of the complement of different animals are interchangeable nor will any given complement be fixed in all antigen-antibody systems.

—A. Ackroyd.

Pressman, D., Sherman, B. & Korngold, L. (1951). **The zone of localization of antibodies. XIII. The *in vivo* localization of anti-liver-blood-vessel antibodies in the rat.**—*J. Immunol.* **67**, 493-500. **1593**

Antisera, prepared in rats by injecting rat liver blood vessels, and tagged with radioactive isotopes, were injected into rats and found to localise in the kidney, lung and liver. The antibodies were eluted from the organs and injected into other rats and were found to localise in the organ of the same type as that from which they had been eluted. Similar results, though less marked, were obtained with normal sera. Antisera absorbed by organ suspensions before injection were found to localise more specifically.—G. Fulton Roberts.

Ogata, T., Tachibana, T., Suzuki, K., Fukuda, K. & Yamaoka, S. (1952). **Quantitative studies on the antigen-antibody reaction by the monolayer technique. I. Number and distribution of haptenic groups in antigens and thickness of adsorbed antibody layer.**—*J. Immunol.* **69**, 13-25. **1594**

Using the monolayer technique the relationship between the number of haptenic groups in azoproteins and the amount of homologous antibody attached to them was determined by measuring the increase in the thickness of the layer.—L. M. Jones.

Stavitsky, A. B. (1952). **The influence of adrenal cortical extract on immunological phenomena *in vivo*. I. Antigen-antibody reactions as indicated by hypocomplementemia, granulocytopenia and reduction of circulating antibody.**—*J. Immunol.* **69**, 63-73. **1595**

The low complement titre, granulocytopenia and drop in antibody which follows a challenge dose of antigen in immunized rabbits, still occurred when one or more injections of 5 or 10 ml. of an aqueous adrenal cortical extract (ACE) were injected s/c at varying intervals before the challenge antigen and indicated that ACE has no effect on the union of antigen and antibody in the circulating blood.

—A. Ackroyd.

Fischel, E. E., Vaughan, J. H. & Photopoulos, C. (1952). **Inhibition of rapid production of antibody by cortisone. Study of secondary response.**—*Proc. Soc. exp. Biol., N.Y.* **81**, 344-348. [Authors' summary modified.] **1596**

Cortisone markedly inhibited the rapid production of antibody associated with the specific anamnestic or secondary response. The effect of cortisone on antibody protein metabolism was discussed.

Lee, J. & Winner, H. I. (1953). **The effect of cortisone on the concentration of *Salmonella paratyphi* A agglutinins in the serum of immunised rabbits.**—*J. comp. Path.* **63**, 15-19. [Authors' summary modified.] **1597**

Less "H" agglutinin could be detected in the serum of immunized and cortisone-treated rabbits than in that of their immunized but untreated littermates. Cortisone-treated rabbits gained less wt. or lost more than their untreated littermates kept under otherwise identical conditions. The authors suggested that these effects were due to increased protein catabolism.

Jiménez Díaz, C., Arjona, E., Alés, J. M., Segovia, J. M. & Perianes, J. (1951). **Effect of nitrogen mustard on antibody formation.**—*Bull. Inst. med. Res., Madrid.* **4**, 151-160. [In English.] [Abst. in *Bull. Hyg., Lond.* **27**, 899. (1952), copied *verbatim.*] **1598**

In the experiments reported in this paper nitrogen mustard did not seem to diminish the formation of antibodies in the rabbit. Slight, momentary decreases of such formation were obtained. In the rabbit, nitrogen mustard therapy facilitates the appearance of anaphylactic shock when lymphopenia is present. The shock is not inhibited by nitrogen mustard in the guinea pig.

Ipsen, J., Jr. (1952). **The effect of environmental temperature on the immune response of mice to tetanus toxoid.**—*J. Immunol.* **69**, 273-283. [Abst. from author's summary.] **1599**

In 3 groups of mice immunized with single doses of fluid tetanus toxoid, from 5–20 flocculation units, and maintained for 14 days at respectively 6°, 25° and 35°C. before being transferred to room temp. and challenged with 20 lethal doses of tetanus toxin, those maintained in the warmer atmospheres during immunization had the highest immunity, the difference being most distinct with a low dose of toxoid. Variation in response to toxoid occurred among animals of different litters, and necessitated

equal distribution of litter mates over the treatments.

The author proposed the term immunizability to describe the inherent attributes of the host which determine the intensity of the immune response. Immunizability is distinct from factors of resistance which determine intensity of reaction to infection in non-immune animals.

WEITZ, B. (1952). **The antigenicity of sera of man and animals in relation to the preparation of specific precipitating antisera.**—*J. Hyg., Camb.* **50,** 275-294. [Author's summary copied *verbatim.*] **1600**

Specific precipitating antisera can be prepared in rabbits by the repeated inoculation of alum-precipitated serum. High titre of sensitivity to the homologous serum is obtained only with a complete loss of specificity. By absorption of the non-specific antiserum with heterologous sera the specificity can be restored. Two types of reactions can be observed in such non-specific antisera: (1) the homologous reaction which occurs with the sera of closely related animals, and (2) the heterologous reaction which is attributed to the presence of antigens which are widespread among mammalian sera.

Cross-immunization experiments have demonstrated the presence of specific antigenic material in the serum of individual species.

A schematic representation of the antigenic arrangement of mammalian sera is suggested.

DUJARRIC DE LA RIVIÈRE, M. & EYQUEM, A. (1952). Groupes sanguins des animaux. Groupes sanguins des bovidés. **[Blood groups in cattle.]**—*Rec. Méd. vét.* **128,** 405-415. **1601**

The authors reviewed the serological work on blood groups in cattle and drew attention to the practical uses of this study.

—G. FULTON ROBERTS.

DUJARRIC DE LA RIVIÈRE, R., EYQUEM, A. & MILLOT, P. (1952). Les groupes sanguins des moutons. **[The blood groups of sheep.]**—*Ann. Inst. Pasteur.* **83,** 576-581. **1602**

The use of iso-antibodies prepared in sheep and hetero-antibodies prepared in goats revealed evidence of antigenic differences in the red cells of 92 sheep. The antigenic variations were very broadly correlated with the breeds of sheep tested.—G. FULTON ROBERTS.

DUJARRIC DE LA RIVIÈRE, R. & EYQUEM, A. (1952). Groupes sanguins des animaux. Groupes sanguins des chiens. **[Blood groups in dogs.]**—*Rec. Méd. vét.* **128,** 493-501. **1603**

This is mainly a review of the literature, special mention being given to incompatible transfusions, and haemolytic disease of the new-born.—B. C. CLARKE.

DOLL, E. R. (1953). **Evidence of the production of an anti-isoantibody by foals affected with hemolytic icterus.**—*Cornell Vet.* **43,** 44-51. [Author's summary modified.] **1604**

Sera of foals which had recovered from haemolytic icterus were found to contain an anti-isoantibody principle which reacted with the isohaemagglutinin in the sera of their dams. Evidence for the presence of the anti-isoantibody was based on the increased sensitivity of adsorbed cells in an antiglobulin serum, the neutralization of mare's haemagglutinin by the foal's serum, and the blocking of agglutination by mares' sera with the foals' sera.

EYQUEM, A., MILLOT, P. & ROBIN, J. (1952). Les anémies hémolytiques expérimentales chez les ovidés. **[Experimental haemolytic disease in lambs and kids.]**—*Ann. Inst. Pasteur.* **83,** 666-670. **1605**

A two-month-old lamb injected s/c with goat anti-sheep red cell antibody underwent a severe but transient anaemia. Haematological data were given. Three kids, aged 9, 10 and 20 days were injected s/c or i/v with varying quantities of sheep anti-goat red cell antibody, each developing a severe anaemia, one dying and another exhibiting haemoglobinuria. Three examples of macerated aborted kids were mentioned as possibly being cases of haemolytic disease of the new-born [very few details].

—G. FULTON ROBERTS.

SZENT, I. T. & SZABÓ, I. (1952). Vizsgálatok az újszülött malacok haemolytikus sárgaságának oktanáról. **[Aetiology of haemolytic icterus in new-born pigs.]**—*Mag. Allator. Lap.* **7,** 331-334. [In Hungarian. English and Russian summaries. Abst. from English summary.] **1606**

The authors observed, in new-born piglets, haemolytic icterus of a kind comparable with Rhesus incompatibility in human beings. Nearly all the piglets died within 24 hours of birth. Pathological, serological and hereditary investigations of the disease are still in progress.

RONCATI, G. & ROSSI, G. (1951). Barriera emato-encefalica ed ittero. (Contributo sperimentale in animali neonati). **[The blood-brain barrier in relation to icterus neonatorum.]**—*Ann. Fac. Med. vet., Pisa.* **4,** 183-203. [English and French summaries.] **1607**

The injection of toluilenediamine into new-born kittens induced a general icterus in a few

days, provided the kittens were suckled by the dam. P.M. examination revealed extensive degenerative changes in the liver and kidneys; no trace of bile pigments could be found in the brain substance.—I. MARTINI.

DALE, H. H. (1952). **The mechanism of anaphylaxis.**—*Acta allerg., Kbh.* **5**, 191-206. [In English.] **1608**

An acount of the progress in understanding of the nature and mechanisms of anaphylaxis since the phenomenon was first observed by Portier and Richet 50 years ago. The precipitating antibody induced by the sensitizing antigen is located in such a relation to living cells of the fixed tissues or the circulating blood, according to the animal species, that its union with the re-injected antigen subjects the cells to sudden injury. The cells respond by the liberation of substances (histamine, heparin) normally held in their protoplasm and it is to the actions of these substances that the different phases of the anaphylactic syndrome can be attributed.

—A. ACKROYD.

See also absts. **1438-1439** (M antigen and R antigen from streptococci); **1442** (haemagglutination in TB.); **1451** (B.C.G.); **1452** (P.P.D.); **1456** and **1458** (haemagglutinating properties of *E. rhusiopathiae* strains); **1468** (hyaluronidase and antigenicity of killed *Brucella* cultures); **1477** (botulinal haemagglutination); **1505** (coccidiosis vaccine); **1509** (premunization of bulls against piroplasmosis and anaplasmosis); **1523** (purification of F. & M. disease antigen); **1527-1539** (F. & M. disease); **1542** (a modified H.I. test); **1553** (rinderpest); **1561-1562** (swine fever); **1564** (Teschen disease); **1569** (distemper); **1577-1578** (Newcastle disease); **1587** (Q fever complement-fixing antibodies).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

DAYKIN, P. W. & LEWIS, E. F. (1952). **Treatment of sarcoptic mange in a pig by magnesium sulphate solution.**—*Vet. Rec.* **64**, 582-583. [Authors' summary modified.] **1609**

A clin. report of the cure of sarcoptic mange in a pig by the application of a local dressing of saturated magnesium sulphate solution. The results as evidenced by both the macroscopic and microscopic appearance of the lesions were described and illustrated by photomicrographs. There was marked improvement after the application of 2 dressings at an interval of 7 days.

PFLUGFELDER, O. (1952). Reaktion des Hühnerlaufs bei *Cnemidocoptes*-Befall (*Sarcoptidae*). [*Cnemidocoptes* **infestation in fowls.**]—*Z. Parasitenk.* **15**, 290-307. **1610**

P. described changes in the thickness of the epidermis of the legs and histopathological lesions of epidermal and mesodermal tissues in fowls infested with *C. mutans*.

—M. L. CLARKE.

SPARR, B. I., CLARK, J. C., VALLIER, E. E. & BAUMHOVER, A. H. (1952). **Studies of the stability of toxaphene emulsions in dipping vats.**—*U.S. Dep. Agric., Agric. Res. Admin., Bur. Ent. Plant Quarantine.* No. E-849. pp. 11. **1611**

Dips containing 0·5% toxaphene were used on cattle, sheep and goats. The particle-size of the dispersed phase increased during the season and the amount of toxaphene deposited on the coat became greater. This is a probable explanation of the losses of cattle dipped in seemingly safe concentrations of the substance.

—JAS. G. O'SULLIVAN.

See also absts. **1453** (*Stomoxys* transmitting swine erysipelas); **1486** (biting flies); **1506** (*Pl. gallinaceum* infection in *A. aegypti*); **1777** (report, Australia); **1780** (book, parasitology).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

KRULL, W. H. & MAPES, C. R. (1952). **Studies on the biology of *Dicrocoelium dendriticum* (Rudolphi, 1819) Looss, 1899 (Trematoda: Dicrocoeliidae), including its relation to the intermediate host, *Cionella lubrica* (Müller). V. Notes on infections of *Dicrocoelium dendriticum* in *Cionella lubrica*.**—*Cornell Vet.* **42**, 339-351. [For part IV, see *V.B.* **23**, 955.] **1612**

Development of sporocysts in the snail *C. lubrica* is slow, taking 3 months or longer. They may be generally distributed or concentrated near the albumen gland, liver follicles or intestine. Snails of all ages are susceptible.

—E. J. L. SOULSBY.

MINNING, W. & VOGEL, H. (1950). Immunbiologische und epidemiologische Untersuchungen bei 3 Fällen von menschlicher Fasciolose. [**Three cases of *Fasciola* infestation in man.**]—*Z. Tropenmed. u. Parasit.* **1**, 532-553. [English summary.] **1613**

An account of *F. hepatica* in three children. Their sera yielded positive c.f. reactions with alcoholic extracts of *F. hepatica*. It was con-

sidered possible that in two cases infestation was acquired by the chewing of sorrel; the third child had eaten windfall apples from a ditch infested with *Limnaea truncatula*.—E.G.

LOPEZ-NEYRA, C. R. (1952). El Brachylaemus intestinal porcino en España. [*Brachylaemus suis*, **a trematode parasite of the intestines of swine in Spain.**]—*Bol. Inf. Col. Vet. Esp. Supl. Cient.* **6**, 89-109. **1614**

The author gave an historical review of the literature concerning *B. suis* and discussed its classification within the Trematoda. He described the life cycle and suggested control measures based on the avoidance or elimination of snails. The parasite is especially prevalent among pigs in Tunis, and has been reported in Spain, where it was recently found to be important as a complicating factor causing death among pigs after inoculation against swine fever. [*V.B.* **23**, 1288.]—A.S.

QUESADA, A. & PAPANDREA, E. (1951). La bilharziosi in Sardegna. [**Bovine and ovine schistosomiasis in Sardinia.**]—*Atti Soc. ital. Sci. vet.* **5**, 273-278. [English and French summaries.] **1615**

Schistosoma bovis may cause serious losses (30–35%) among cattle and sheep in Sardinia, especially during autumn and winter. Affected animals are cachectic, the parasite being found most commonly in the mesenteric venous system.—I. MARTINI.

HOPKINS, C. A. & SMYTH, J. D. (1951). **Notes on the morphology and life history of** *Schistocephalus solidus* **(Cestoda: Diphyllobothriidae).**—*Parasitology*. **41**, 283-291. **1616**

The adult tapeworms do not stay in the intestine of ducks longer than 3–4 days. Maturation of the plerocercoid is very rapid (36 hours). Bothria are absent from the adult and plerocercoid stages. The wt. of the plerocercoids may reach 92% of the body wt. of the fish intermediate host.—JAS. G. O'SULLIVAN.

ENIGK, K. (1950). Die Biologie von Capillaria plica (Trichuroidea, Nematodes). [**Biology of** *Capillaria plica*.]—*Z. Tropenmed. u. Parasit.* **1**, 560-571. [English summary.] **1617**

A study of the life cycle of *C. plica*. Ova excreted with the urine of foxes were ingested by earthworms and hatched in their intestine. In foxes fed infested earthworms, second-stage larvae appeared after about 10 days in the wall of the small intestine and third-stage larvae in the bladder 20 days later. Transformation into the fourth larval stage and maturity also took place in the bladder. Treatment of infested foxes with phenothiazine and heterazan was ineffective.—E.G.

ZARZYCKI, J. (1952). Zmiany histologiczne tkanki mięśniowej przy zakażeniu włośniami (Trichinella spiralis). [**Histological changes in the muscle tissue following infection with** *T. spiralis*.]—*Ann. Univ. M. Curie-Skłodowska*. Sect. DD. **6**, 155-176. [In Polish. English and Russian summaries.] **1618**

Before the larvae of *T. spiralis* enter the muscle fibres they produce a substance which causes granular degeneration within the muscle; this can be demonstrated on the seventh day following infection. The internal layer of the capsule is formed on the 15th day of infestation when the larva begins to twist, to assume the spiral form. The external layer is formed when the larva attains its completed spiral form by the 23rd day of infestation.

—J. R. MITCHELL.

GERICHTER, C. B. (1951). **Two new lung nematodes from Near-East mammals.**—*Parasitology*. **41**, 184-188. **1619**

G. described a new species of *Crenosoma*, *C. lophocara*, from the hedgehog, *Erinaceus roumanicus sacer*, and a nematode of the subfamily Pseudaliinae, for which he proposed the name *Stenuroides herpestis*, n.g., n.sp., from a terrestrial host, the mongoose.

—M. L. CLARKE.

VAUGHN, J. (1952). **The stimulation of the eosinophil leucocyte.**—*J. Path. Bact.* **64**, 91-102. **1620**

An extract of *Ascaris lumbricoides* containing polypeptides and other protein breakdown products produced eosinophilia when injected i/p into normal unsensitized g. pigs. The effect was completely prevented by the administration of an antihistamine drug, and histamine phosphate had an eosinophilogenic activity resembling that of the active *Ascaris* extract.

—E. COTCHIN.

REEVES, P. A. (1952). **Filariasis (heart worm.)** —*J. R. Army vet. Cps.* **23**, 132-133. **1621**

Of the drugs used on 21 affected dogs, "banocide" (diethylcarbamazine) in doses of 25 mg./kg. was most effective. It had to be used for a prolonged period to ensure the killing of the adult worms.—JAS. G. O'SULLIVAN.

HAWKING, F. (1953). **The periodicity of microfilariae.** [*Dirofilaria repens*.] **III. Transfusion of microfilariae into a clean host.**—*Trans. R. Soc. trop. Med. Hyg.* **47**, 82-83. [Abst. from author's summary.] **1622**

When microfilariae of *D. repens* were transfused i/v into a clean dog, they showed

well marked nocturnal periodicity similar to that shown in the donor dog. This indicated that the periodicity of microfilariae does not depend upon the adult worms. The microfilariae persisted in the new host up to 68 days.

BÖHM, L. K. & SUPPERER, R. (1952). Die Mondblindheit der Einhufer — verursacht durch die Mikrofilarien von *Onchocerca reticulata* Diesing. **[Periodic ophthalmia in horses caused by the larval stages of *Onchocerca reticulata*.]**—*S.B. öst. Akad. Wiss.* **161,** 9-17. **1623**

Nineteen horses with periodic ophthalmia were examined P.M., the eyes being given special attention. In 18 there were adult *O. reticulata* in the ligamentum nuchae. In 14, larval forms of the parasite were demonstrated in sections of the eye tissues, particularly in the cornea, sclera and conjunctiva. In 6 other horses infested with adult *O. reticulata* but free from periodic ophthalmia, microfilariae were not demonstrable.

In 55 of 71 horses examined at the Vienna abattoir during 1950-51, *O. reticulata* was present.

Microfilarial forms of the parasite were demonstrated experimentally in the intestinal content of blood-sucking Diptera [no details given] which had fed on 33 horses at pasture. By this method 28 of the horses were found to have been infested.

Four diagrams and one photomicrograph of sections were reproduced.—E.G.

GUILHON, J. & LOGÉ, G. (1952). Dioctophymose canine en France. **[*Dioctophyme renale* in dogs in France.]**—*Rec. Méd. vét.* **128,** 665-673. **1624**

This parasite is fairly widespread, mostly in the coastal regions of France. Four puppies from a bitch in which *D. renale* was present at P.M. examination, died at the age of 3½ to 4 months. *D. renale,* which was present in a kidney of each puppy, was probably acquired prenatally.—JAS. G. O'SULLIVAN.

See also absts. **1773-1774** (reports, Gt. Britain); **1780** (book, parasitology); **1782** (book, tapeworms).

NUTRITIONAL AND METABOLIC DISORDERS

ASHWORTH, M. A., KERBEL, N. C. & HAIST, R. E. (1952). **Effect of chronic caloric insufficiency on the growth of the islets of Langerhans.**—*Amer. J. Physiol.* **171,** 25-28. [Authors' summary modified.] **1625**

Undernutrition sufficient just to maintain the initial body wt. in young rats prevented the growth of the islets of Langerhans. This led to a significant difference in islet weights between the undernourished rats and controls fed *ad libitum*. Under these conditions of undernutrition the wt. of the pancreas increased even though the body wt. did not. A smaller amount of food was required to maintain the body wt. in the 4th week than in the first week of the undernutrition period.

HOFMANN, W. (1952). Über Störungen in der Fruchtbarkeit beim Rind infolge fütterungsbedingter Ursachen. **[Nutritional infertility of cattle.]**—*Schweiz. Arch. Tierheilk.* **94,** 712-723. [English, French & Italian summaries.] **1626**

H. estimated that 25–35% of all sterility is due to faulty nutrition and management. He gave two examples (1) ovarian disturbances and inflammation of the genital tract in a herd of 50 cows, attributed to excess malt (brewer's grains) in the diet, (2) similar symptoms due to excess of potassium in fodder crops, caused by over-manuring.—ROY MACK.

HUNGATE, R. E., DOUGHERTY, R. W., BRYANT, M. P. & CELLO, R. M. (1952). **Microbiological and physiological changes associated with acute indigestion in sheep.**—*Cornell Vet.* **42,** 423-449. [Abst. from authors' summary and conclusions.] **1627**

An excess of grain or glucose introduced into the rumen caused a marked change in the rumen micro-organisms. The cellulolytic bacteria greatly decreased in numbers, the protozoa were killed, and the relative number of Gram-positive bacteria increased. The amount of non-volatile acids diminished and rumen motility was partially or completely inhibited. Death resulted in a high proportion of untreated animals.

The high acidity of the rumen contents (pH 4·1–4·7) was due to the fermentation of the food by bacteria: evidence was obtained that *Streptococcus bovis* usually caused this acidity. It grows extremely rapidly, and, because it is a homofermentative organism, lactic acid accumulates when it becomes predominant in the rumen.

Preliminary trials suggested that acetic or lactic acid added to the rumen caused a cessation in rumen motility but did not kill the animal. Further experiments using more animals are needed before final conclusions are drawn. These experiments should disclose whether *Str.*

bovis causes acute indigestion solely through its rapid formation of acid or whether other metabolic products are also involved.

NIKITIN, V. N., TVERDUN, O. G., LEBEDINSKII, N. A., LOIKO, A. F. & MAMINA, V. V. (1950). **[The pathophysiology of chronic tympanitic obstruction in lambs ("blown" lambs) of the grey Sokol breed with new data on digestion in the rumen of the sheep.]**—*Zh. Obshchei Biol.* **11**, 336-358. [In Russian.] [Abst. from abst. in *Nutr. Abstr. Rev.* **22**, 588-589. (1952).] **1628**

Studies on the acidity and rate of gas formation in the rumen chyme, together with kymographic measurements of the contractions of the rumen, led the authors to draw the following conclusions: bloat may be looked on as chronic tympany, which is often accompanied by blockage and ulceration of the abomasum. The musculature of the rumen is feebly developed and cannot cope with coarse foods; this muscular incapacity may sometimes be manifested even as early as the milk stage. The function of the abomasum is also undeveloped. The nervous control of the rhythm of the rumen is disturbed. Experiments on the fermentation of the chyme indicated that the type of fermentation is similar in sick and healthy animals. There are grounds therefore for attributing the disorder to a spasmodic action of the sphincters (in particular pylorospasm and possibly cardiospasm) resulting in the defective mixing of chyme, and an increase in the viscosity of the chyme. Owing to this increased viscosity, waste gases cannot collect in large gas bubbles, but remain as very small bubbles with the result that they are not removed as in normal animals. This leads to overfilling of the rumen, blockage of the abomasum, ulceration of the mucous membrane, and finally to the perforation of the walls.

One of the most important methods of controlling chronic tympany is to introduce a more varied diet.

TRIBE, D. E., GORDON, J. G. & GIMINGHAM, C. H. (1952). **The nutritive value of weeds and coarse herbage (browse) for young cattle grazing a temporary pasture.**—*Emp. J. exp. Agric.* **20**, 240-248. [Abst. from authors' summary.] **1629**

From May 5 to October 26, 1950, 11 young dairy animals grazed productive grass alone while a similar group of 11 grazed productive grass plus browse. Botanical observations made on the 2 pastures throughout the experiment indicated how the experimental management was successful in reducing the weed population in the productive grass to a minimum, whilst encouraging the weed-growth in the browse plot. The body-weights of all the animals were recorded weekly. There was no significant difference between the gains of the two groups.

Observations on grazing behaviour over a 96-hour period recorded a similarity between the groups in the times devoted to grazing. This experiment provided no evidence to support the opinion that it benefits grazing animals to have access to browse in addition to luscious herbage.

POPE, G. S. & ROY, J. H. B. (1953). **The oestrogenic activity of bovine colostrum.**—*Biochem. J.* **53**, 427-430. [Authors' summary copied *verbatim*.] **1630**

Oestrogenic activity approximately equal in amount to that found in bovine and human pregnancy blood has been found in bovine colostrum. The oestrogens occur mainly as conjugates in the aqueous phase of colostrum and are partly ketonic. The conjugated oestrogens of separated colostrum from one cow were equivalent to 5·2 μg. oestradiol-17β/l.

TURNER, A. W. & HODGETTS, V. E. (1952). **Depression of ruminal digestion in adult sheep by aureomycin.**—*Aust. J. agric. Res.* **3**, 453-459. [Authors' summary modified.] **1631**

After the consumption by adult sheep of an amount of aureomycin hydrochloride corresponding to 23·6–27·1 mg./kg. body wt., the ruminal flora had fallen about 75% within 2 hours and remained at this level for at least 2 days, the survivors being predominantly Gram-positive rods and cocci. Ruminal fermentation was greatly depressed; the yield of organic acids reached only about 30% of the normal and was insufficient to lower the ruminal pH significantly. Appetite was lessened and body weight fell, but responded favouraby to administration of ruminal fluid and yeast extract.

BRAUDE, R. & MITCHELL, K. G. (1952). **Antibiotics and liver extract for suckling pigs.**—*Brit. J. Nutr.* **6**, 398-400. [Authors' summary modified.] **1632**

Unweaned piglets given daily during the 2nd–5th weeks of life 10 mg. of either penicillin or streptomycin did not grow better than their untreated litter-mates during the 8-week suckling period. The diets of mothers and young contained white fish meal. Previous findings that pigs reared indoors benefit from the addition of a liver extract to their diet were confirmed. Irrespective of treatment, pigs reared outdoors on pasture grew better than those reared indoors.

WORDEN, A. N. & BUNYAN, J. (1952). **The administration of a procaine penicillin feeding**

supplement to "runt" pigs.—*Vet. Rec.* **64,** 647-651. [Authors' summary modified.] **1633**

A group of 10 unthrifty Large White pigs, ranging in wt. from 11 to 23 lb. at 67–70 days of age, was successfully reared when the all-meal ration was fortified with 8 mg. procaine penicillin per ton of food consumed. At the end of 191 days, by which time 6 of the pigs had exceeded 200 lb. live wt., the av. daily gain was 0·92 lb. and the food consumption 3·65 lb./lb. live wt. gain. The remaining pigs subsequently attained bacon wt. and were graded.

Controlled feeding trials on the same farm did not indicate any marked response of normal pigs of the same breed to the procaine penicillin feeding supplement.

ARNRICH, L., LEWIS, E. M. & MORGAN, A. F. (1952). **Growth of dogs on purified diet plus aureomycin and/or vit. B_{12}.**—*Proc. Soc. exp. Biol., N.Y.* **80,** 401-404. **1634**

The increased growth observed in dogs given 5 μg.% vitamin B_{12} or 10 mg.% aureomycin with a complete purified diet was attributed solely to increased fat deposition.

—N. DEAN.

SCHENDEL, H. E. & JOHNSON, B. C. (1953). **Comparison of anti-bacterial and anti-yeast-mold antibiotics with baby pigs in the presence of several levels of B vitamins.**—*J. Anim. Sci.* **12,** 88-95. [Authors' summary modified.] **1635**

Terramycin exerted a significant effect on the final wt. of piglets fed a "synthetic milk" with "optimal" or "excessive" content of vitamin B, the effect being significant after equalization of the variations in food consumption. The effect of rimocidin on final wt. was not significant. No imposed treatment other than the method of selection of the piglets had a significant effect on the feed consumption.

LILLIE, R. J. & BIRD, H. R. (1952). **Effect of antibiotic supplements upon hatchability and upon growth and viability of progeny.**—*Poult. Sci.* **31,** 513-518. **1636**

Aureomycin in the diet of hens fed a ration low in vitamin B_{12} did not appear to improve hatchability or confer any benefit upon the chicks. Chick mortality however appeared lowest when the chick diet was supplemented with aureomycin.—F. T. W. JORDAN.

WAIBEL, P. E., SUNDE, M. L. & CRAVENS, W. W. (1952). **Effect of addition of penicillin to the hen's ration on biotin and folic acid content of eggs.** — *Poult. Sci.* **31,** 621-624. [Authors' summary slightly modified.] **1637**

The addition of penicillin to a practical breeder diet resulted in no measurable effect on egg production, body wt., egg wt., or hatchability for an experimental period of 10 months. An increased deposition of biotin in egg yolk occurred at approx. 16 days after 5 and 200 mg. of procaine penicillin G was added to a basal hen breeding diet. These additions resulted in 29·6 and 38·5% increases over the basal ration, respectively, for the period between 26 and 47 days after treatment was begun. In another similar experiment the addition of 200 mg. of penicillin/kg. of diet increased biotin deposition 41·1% for an 83–223 day period.

The addition of 5 and 200 mg. of penicillin/kg. of diet increased folic acid deposition 31·0 and 26·7% respectively, for a 30–47 day period. In another experiment 200 mg. of penicillin/kg. increased deposition 12·6% for the period 83–174 days after penicillin feeding was begun.

STERN, J. R. & MCGINNIS, J. (1953). **Comparative growth response of chicks to detergents, germicides and penicillin.**—*Poult. Sci.* **32,** 26-28. [Authors' summary copied *verbatim.*] **1638**

Various detergents and germicides were added to a chick basal diet at various levels. Either procaine or diamine penicillin was used as a positive control to obtain comparative effects of the supplements on growth. In every feeding trial, only penicillin produced a significant growth response. The detergents and germicides either produced no significant growth response or, in some cases when fed at high levels, depressed growth.

KRATZER, F. H., STARR, M. P., REYNOLDS, D. M. & GRAU, C. R. (1952). **Effects on growth of chicks and poults of feeding yeast isolated from streptomycin-fed poults.**—*Proc. Soc. exp. Biol., N.Y.* **81,** 312-315. [Authors' summary copied *verbatim.*] **1639**

A 5- to 10-fold increase was noted in the yeast population of the intestinal contents of turkey poults when they were fed a ration containing streptomycin. When the yeasts were isolated and fed to other poults and chicks there was no consistent increase in growth, although very slight increases were noted in some trials. The growth increase observed with the feeding of antibiotics apparently cannot be simulated by feeding the particular strains of yeast isolated.

BRANION, H. D. & HILL, D. C. (1953). **Fish meal and the response of chicks to antibiotics.**—*Poult. Sci.* **32,** 151-158. [Authors' summary copied *verbatim.*] **1640**

The percent growth response of chicks to procaine penicillin is lower if fish meal is in-

cluded in the diet but average growth is greater. Fish meal contains an unknown growth factor or factors.

COATES, M. E., HARRISON, G. F., KON, S. K., PORTER, J. W. G. & THOMPSON, S. Y. (1952). **Antibiotics in chick nutrition and vitamin A metabolism.**—*Chem. & Ind.* 1952. **149.** [Abst. in *Brit. Abstr.* A.III. Aug. p. 1370 of absts. (1952), copied *verbatim.* Signed: J. PARNESS.] **1641**

The authors have previously shown [*V.B.* **22,** 3559] that the administration of antibiotics to chicks produced an increased rate of growth only when the chicks were suffering from a hitherto undescribed transmissible "infection". In this paper, the authors have studied the vitamin-A-reserves in the liver of chicks 14–28 days old, after procaine penicillin, in dosage of 25 mg. of Na penicillin per kg. of diet, had been added to the daily diet of both "infected" and "not infected" groups; additional groups to which normal diets were given were used as controls. It was found that the antibiotic increased the liver storage of vitamin A only when it also accelerated growth. Hence it is probable that the effect is not specific.

ROSENBERG, M. M., MORIKAWA, W. & BUSHNELL, O. A. (1952). **The effect of increasing concentrations of terramycin on the growth and intestinal microflora of chicks.**—*Poult. Sci.* **31,** 708-714. [Abst. from authors' summary.] **1642**

Terramycin was fed at 5 progressively doubled concentrations, in 2 trials, to determine its effect on the intestinal microflora of chicks. Counts of organisms present in natural faeces were made. Although terramycin significantly stimulated the growth rate of chicks during the two 28-day studies and increased the efficiency of feed utilization, the microflora detectable by the techniques used was not eliminated or even significantly reduced in number, even when 16 times the recommended amount of terramycin was fed. In both trials the enterococci counts were significantly greater among the groups receiving the higher concentrations of terramycin.

I. & II. MORRILL, C. C. (1952). **Studies on baby pig mortality. VIII. Chemical observations on the newborn pig, with special reference to hypoglycemia. IX. Some morphological observations on the newborn pig, with special reference to hypoglycemia.**—*Amer. J. vet. Res.* **13,** 164-170; 171-180. **1643**

I. Chemical observations on 128 piglets (59 normal, 46 fasted until moribund, and 23 with the clinical syndrome usually known as "hypoglycaemia" or "baby pig disease") indicated that, while the normal new-born piglet has an appreciable carbohydrate reserve, rapid depletion of liver glycogen resulting in hypoglycaemia with a significant rise in blood NPN and urea nitrogen occurs both in fasted piglets and those with clinical "baby pig disease". There is no evidence to show that the observed azotaemia resulted from impaired kidney function.

II. Histological examination of a series of 147 piglets (including 128 referred to above) supported the contention that the azotaemia of fasting and "baby pig disease" is not of renal origin.—J. T. DONE.

MAWAS, J., JACQUOT, R. & RAULIN, J. (1952). Cataracte expérimentale provoquée chez le rat en croissance par un régime riche en cholesterol et en acides gras polydésaturés. **[Experimental cataract in the rat caused by a diet rich in cholesterol and unsaturated fatty acids.]**—*C. R. Acad. Sci., Paris.* **234,** 665-667. **1644**

Simultaneous ingestion of unsaturated fatty acids and cholesterol caused rapid development of cataract in 20 out of 130 growing rats.

—N. DEAN.

PETERSON, D. W., NICHOLS, C. W., JR. & SHNEOUR, E. A. (1952). **Some relationships among dietary sterols, plasma and liver cholesterol levels, and atherosclerosis in chicks.**—*J. Nutr.* **47,** 57-65. **1645**

Chicks fed a high cholesterol diet plus soya bean sterols for 28 weeks showed no rise in blood or liver cholesterol levels. There was a marked decrease in atherosclerosis in chicks so fed.—P. G. HIGNETT.

BOUCKAERT, J. H. & OYAERT, W. (1952). Eiwit-Metabolisme bij Herkauwers. **[Albumin metabolism in ruminants.]**—*Vlaam. Diergeneesk. Tijdschr.* **21,** 61-69. [English, French and German summaries.] **1646**

The contents of the rumen of four cows having rumen fistulae were compared with the given diet. After digestion percentages of isoleucine, leucine, lysine, methionine, phenylalanine, thereonine, tryptophane and valine had increased; arginine and histidine had decreased. The analyses were compared with rumen contents of three normally slaughtered cows and with the observations of Loosli *et al* [*V.B.* **20,** 2417].—C. A. VAN DORSSEN.

CATRON, D. V., JENSEN, A. H., HOMEYER, P. G., MADDOCK, H. M. & ASHTON, G. C. (1952). **Re-evaluation of protein requirements of**

growing-fattening swine as influenced by feeding an antibiotic.—*J. Anim. Sci.* **11,** 221-232. **1647**

Groups of fattening pigs were kept on varying levels of protein with and without aureomycin (10 mg./lb. feed). The antibiotic appeared to have a "protein sparing" effect at protein levels of 14-11-8% from weaning to 200 lb. in weight. No significant difference was found in the grading of the carcasses on the different rations used.—D. LUKE.

MATTHAIAKIS, E. (1951). **[Lucerne hay in the intestinal intoxication of the horse.]**—*Delt. Hellen. kten. Hetair.* **2,** 169-174. [In Greek. French summary.] **1648**

Lucerne hay was fed to horses [number not stated] unaccustomed to it. Thirteen cases, 4 fatal, of colic accompanied by nervous symptoms were attributed to putrefaction in the large intestine of proteins of the lucerne hay.

—J. M. TAIT.

HUTSON, L. R. (1952). **Initial observations on iodine deficiency in cattle in Antigua, B.W.I.** —*Vet. Rec.* **64,** 289-290. **1649**

Description of two cases of simple goitre in new-born calves: this may be a conditioned iodine deficiency following a high calcium and magnesium intake of the dams.—JOHN SEAMER.

WIDDOWSON, E. M. & MCCANCE, R. A. (1953). **The effect of dosage on sexual differences in the iron metabolism of rats.**—*Biochem. J.* **53,** 173-176. [Authors' summary modified.] **1650**

Higher concentrations of iron were found in the liver, spleen and kidneys of female rats than in the corresponding organs of males, the differences being greatest at and after the 100th day of life . A 2–6 fold increase in the intake of iron raised these concentrations both in males and females, but the latter maintained their lead.

RAMSAY, W. N. M. (1951). **Iron metabolism and haemoglobin formation in the embryonated hen egg. II. Some observations on the embryonic blood supply.**—*Biochem. J.* **49,** 494-499. **1651**

Seventy-four eggs were studied for periods of 4–21 days. Embryo haem iron increases in logarithmic proportion to the embryo body weight. Towards the end of incubation membrane haem is destroyed and it is suggested that the iron is stored in the embryo.

—F. T. W. JORDAN.

FAIN, P., DENNIS, J. & HARBAUGH, F. G. (1952). **The effect of added manganese in feed on various mineral components of cattle blood.** —*Amer. J. vet. Res.* **13,** 348-350. [Abst. from authors' summary.] **1652**

Cattle fed manganese (Mn) in amounts varying from 75 to 200 p.p.m. in the diet had no symptoms of "wheat poisoning". Blood magnesium decreased at Mn levels of 100 p.p.m., but returned to normal at levels of 150 p.p.m. The depression of magnesium is not clearly understood, and there is some question as to whether continued intake of Mn at a level of 100 p.p.m. would produce still lower values of magnesium, resulting eventually in tetany.

The addition of Mn to the diet, in the amounts given, appears to have no significant effect on the concentration or metabolism of glucose, iron, calcium, or potassium.

SADASIVAN, V. (1952). **Studies on the biochemistry of zinc. III. Further investigations on the influence of zinc on metabolism.**—*Biochem. J.* **52,** 452-455. [Abst. from author's summary.] **1653**

The changes in the metabolism of nitrogen, phosphorus and sulphur and in urinary excretion of uric acid and total creatinine (creatine and creatinine) in rats fed a high-fat diet supplemented with zinc were similar to those for a stock diet. The decreased assimilation of phosphate from the intestines is not due to its being precipitated as insoluble zinc phosphate. Zinc supplements lowered the activity of intestinal alkaline phosphatase and increased the phosphatase acticity in the liver and kidneys. There appeared to be no change in the excretion of fat in the faeces.

The influence of zinc and other substances such as choline, methionine, *l*-cystine and cyanide on the lipolytic activity of pancreatic lipase of the rat was also investigated.

ARMSTRONG, R. H. & THOMAS, B. (1952). **The availability of calcium in three legumes of grassland.**—*J. agric. Sci.* **42,** 454-460. [Abst. from authors' summary.] **1654**

The authors studied the availability of the calcium in 3 grassland species, all legumes, with rats as experimental animals, using 2 procedures involving determination of the calcium balance, (*a*) by analysis of feed, faeces and urine, and (*b*) by a slaughter technique. The two methods gave results, for any one species, which were without significant difference, but the authors considered that the latter would be the simpler technique when any large number of determinations has to be made.

The calcium in both lucerne and late-flowering red clover was available to a significantly greater degree than that in wild white

clover. In all 3 species calcium availablity was high.

The authors discussed the possible significance of the high faecal calcium found in rats receiving wild white clover. They concluded that the extension of availability studies to a wider range of grassland species and of their mineral components would be desirable.

HANSARD, S. L., COMAR, C. L. & PLUMLEE, M. P. (1952). **Absorption and tissue distribution of radiocalcium in cattle.**—*J. Anim. Sci.* **11,** 524-535. **1655**

The fate of oral and i/v labelled calcium in 21 Hereford cattle was traced. 34% oral and 85% i/v calcium are retained in the body, mostly the skeleton; about 20% skeletal calcium is exchangeable.—JOHN SEAMER.

VISEK, W. J., BARNES, L. L. & LOOSLI, J. K. (1952). **Calcium metabolism in lactating goats as studied with Ca^{45} following oral and intravenous administration.**—*J. Dairy Sci.* **35,** 783-792. [Authors' summary modified.] **1656**

During oral administration of Ca^{45}, the amount of radio-activity appearing in the milk was a function of the total amount of milk Ca being secreted. The level of Ca^{45} excreted in the urine followed closely the level of activity in the blood. What influence the level of dietary P exerted on the results obtained could not be determined from the data.

The amount of Ca absorbed from the gastointestinal tract as measured by the level of Ca^{45} appearing in the blood stream following oral administration was related closely to the Ca requirements for lactation. The higher the level of milk production, the greater was the percentage of Ca^{45} present in the plasma 24 hours after an oral dose. The authors concluded that the rate of Ca absorption in these studies was governed by the needs of the animal.

CONSTANT, M. A. & PHILLIPS, P. H. (1952). **The occurrence of a calcinosis syndrome in the cotton rat. I. The effect of diet on the ash content of the heart.**—*J. Nutr.* **47,** 317-326. **1657**

CONSTANT, M. A., PHILLIPS, P. H. & ANGEVINE, D. M. (1952). **The occurrence of a calcinosis syndrome in the cotton rat. II. Pathology.**—*Ibid.* 327-339. [Authors' summaries modified.] **1658**

I. The authors presented survey data on the effect of diet on the development of a calcinosis syndrome which produced a markedly increased ash content of the heart in cotton rats. The alleviating effect of oatmeal, the detrimental influence of high phosphorus and the failure of vitamin E to cure the syndrome in g. pigs apparently apply also to cotton rats. The syndrome in cotton rats was primarily associated with the feeding of partially purified diets. Preliminary studies failed to establish an infective agent as the cause of this syndrome.

Dietary conditions which increased the severity of the syndrome were (a) increased calcium and phosphorus; or (b) decreased magnesium levels; or (c) basic mineral mixture; or (d) increased metabolic demands imposed by manganese deficiency or the feeding of sodium acetate. Dietary modifications found to alleviate the syndrome were dextrin or additional protein. Supplementation of partially purified diets with B vitamins, cystine, vitamin B_{12} or 1:20 liver extract had little effect on the syndrome. A high level of magnesium did not prevent it.

II. The authors described the lesions occurring in cotton rats affected by a calcinosis syndrome. They discussed the similarity of these changes to those found in deficient g. pigs. The syndrome in cotton rats was manifested primarily by necrosis and calcification of the myocardium and skeletal muscle. Other organs may be similarly affected, but the incidence and severity were considerably less.

Although the severity and acuteness of the disease may be markedly increased by lowering the magnesium content of the diet, no microscopic evidence of magnesium deficiency was found. Histological examination of various organs supported the results of previous studies [see I *supra*] in ruling out vitamin E deficiency as the cause of the calcinosis.

DZIEWIATKOWSKI, D. D. (1952). **Radioautographic studies of sulfate-sulfur (S^{35}) metabolism in the articular cartilage and bone of suckling rats.**—*J. exp. Med.* **95,** 489-496. [Author's summary modified.] **1659**

Fifteen minutes after i/p inj. of sulphur-35 as sodium sulphate to 7-day-old rats the conc. of the isotope was highest in the cartilage at the epiphyseal-diaphyseal junction of long bones but was demonstrable throughout the entire epiphysis. Up to the 24th hour the pattern of deposition did not change as the conc. continued to increase.

As centres of secondary ossification developed, there occurred in them an increased conc. of some form of sulphur, insoluble as the barium salt. This sulphur was probably derived from the cartilage which the centre of secondary ossification replaced. Up to about the 30th

min. after inj. the sulphur-35 was deposited transitorily in a high conc. in discrete loci of the bone marrow. Excluding this transitory deposition, the highest conc. of the radio-isotope in the bone marrow was seen in the specimens removed 24 hours after administration. In the bone shaft the sulphur-35, in a form which was insoluble in an alkaline solution of barium ions, was deposited diffusely up to the 24th hour after its administration. Thereafter, the radio-isotope decreased in conc. in the middle portion of the bone shaft. However, the conc. of a similarly characterized sulphur-35-bearing compound in the ends of the diaphysis continued to increase up to at least the 96th hour after injection.

ABRAMS, J. T. (1952). **The phosphorus requirements of dairy cattle.**—*Agriculture, Lond.* **59,** 363-367. **1660**

Phosphorus requirements and Ca/P ratio for milk production were discussed with emphasis on the effect of vitamin D and its deficiency together with the limitations of our present knowledge.—JOHN SEAMER.

OWEN, E. C. (1952). **Bone as a mineral reserve.** —*Brit. J. Nutr.* **6,** 415-423. **1661**

The skeleton acts as a storehouse for Ca, P, and Mg. Stores of Ca and P are labile, being transferred preferentially to the soft tissues in time of need. Demands on the bone during rapid growth and lactation are particularly heavy and may lead to serious weakening of the longer bones and to rickets. A diet rich in minerals is important and vitamin D, in tending to favour deposition in the bones, offers the skeleton a certain protection against the excessive demands of the soft tissues.—A.S.

KLOSTERMAN, E. W., BOLIN, D. W., LIGHT, M. R. & DINUSSON, W. E. (1952). **Relationship between inorganic phosphorus and vitamin A in the rat and sheep.**—*Science.* **116,** 665-666. **1662**

Phosphorus deficient animals stored larger amounts of vitamin A than those on a phosphorous sufficient diet when this vitamin or carotene was fed *per os.*—G. B. S. HEATH.

WEITS, J. (1952). **A factor in hay inhibiting the action of vitamin D.** [Correspondence.] —*Nature, Lond.* **170,** 891. **1663**

Experiments with rats showed that when they were fed hay fat and added vitamin D, 20 to 50% of the extra vitamin D was lost. This confirms an earlier suggestion that hay contains an antivitamin D factor but its importance in nutrition is still uncertain.—J. A. NICHOLSON.

NAFTALIN, J. M. (1952). **Dietary liver necrosis. Influence of environmental temperature and mode of feeding on its production in the rat.** —*Lancet.* **263,** 1013-1015. [Abst. from author's summary.] **1664**

A high incidence of acute liver necrosis was produced in young male albino rats when they were housed in a suitable environment and allowed to eat *ad libitum* a diet containing 8% vitamin-free casein, 3% yeast, 7% lard, 2% cod-liver oil, 76% sucrose, and 4% McCollum's salt and B vitamins, but without added vitamin E.

Of the 3 ranges of environmental temp. studied, *viz.*, 60°–64°F., 70°–78°F., and 88°–92°F., the best for the production of acute liver necrosis was 70°–78°F.

A sufficient degree of food restriction prevented liver necrosis at all environmental temperatures studied, but a too severe degree of restriction led to death without liver necrosis. Whether a rat survived or died of necrosis or of inanition depended on the degree of food restriction in relation to the environmental temp. and not on the amount of food eaten.

POLUIKOVSKI, M. D. & YAKOVLEV, S. A. (1952). **[Enzootic ataxia in lambs.]**—*Veterinariya, Moscow.* **29,** No. 9. pp. 31-33. [In Russian.] **1665**

Ataxia in lambs 1–3 days old with up to 100% fatal outcome occurred on low lying pastures adjoining the Caspian sea, but invariably ceased when the flocks were driven to pastures at higher altitudes. Blood tests revealed vitamin B and copper deficiencies in both ewes and lambs when these were grazing on this low lying ground.—F.A.A.

HEUSER, G. F. & SCOTT, M. L. (1953). **Studies in duck nutrition. V. Bowed legs in ducks, a nutritional disorder.**—*Poult. Sci.* **32,** 137-143. [Authors' summary modified.] **1666**

The bowed leg disorder in ducklings raised on wire-mesh floors appears to be due to a niacin deficiency and was entirely prevented by supplementing the diet with 5 to 7·5% of dried brewers' yeast or by adding 10 mg. of synthetic niacin/lb. of ration. Satisfactory growth was obtained with the addition of 3·8% of dried brewers' yeast or 5 mg. of synthetic niacin/lb. of ration. The niacin present in wheat standard middlings appeared to be relatively unavailable to the duckling as compared with synthetic niacin or to that present in dried brewers' yeast.

BLACK, D. J. G., GETTY, J., MORRIS, T. R. & PALGRAVE, J. (1952). **The use of different quantities of dried skimmed milk and ribo-**

flavin supplement in chick rations.—*J. Sci. Fd Agric.* **3**, 551-555. [Abst. from authors' summary.] **1667**

Dried skim milk is generally considered to be a desirable ingredient of chick diets—an opinion reflected in the present Ministry of Food Regulations, which require that Baby Chick Mash shall contain at least 6% of dried skim milk, except that it is permissible to replace each 1% of dried milk products by ½% of unextracted dried yeast.

The results of an investigation to determine the effects of reducing the level of dried skim milk in a Baby Chick Mash and substituting varying amounts of a riboflavin suppl. indicated that under the conditions of these experiments, the level of dried skim milk may be reduced to 3% of the diet, or omitted entirely, without significantly affecting growth rate, food consumption, feathering or general health of the chick up to 10 weeks of age, provided that adequate riboflavin suppl. is added to the mash.

The chicks receiving neither dried skim milk nor riboflavin suppl. in their diet had a somewhat poorer growth-rate which was particulary evident in both experiments at 5–6 weeks of age.

I. & II. Bolton, W. (1953). **Observations on the vitamin metabolism of the common fowl. III. The effects of oestradiol dipropionate, testosterone propionate and progesterone injections in immature pullets on the riboflavin content of the magnum. IV. Free and combined riboflavin in the magnum and liver of the laying hen fed a diet high in riboflavin.**—*J. agric. Sci.* **43**, 116-119 & 120-122. [Author's summaries modified.] **1668**

I. The effects of injections of oestradiol dipropionate, testosterone propionate and progesterone in immature pullets were studied. Oestradiol dipropionate causes hypertrophy of the oviduct, and increases in calcium and riboflavin in the serum. Testosterone propionate produced hypertrophy and reddening of the comb and wattles, it acted synergistically with oestradiol dipropionate in evoking hypertrophy of the oviduct: progesterone neutralized this effect of oestradiol dipropionate and testosterone propionate on the growth of the oviduct. Progesterone and/or testosterone propionate increase the percentage of free riboflavin in the hypertrophied magnum [the albumen-secreting portion of the oviduct] from 18% of the total vitamin present to 35%.

II. The partition of riboflavin into free vitamin, flavinmononucleotide and flavin-adenine-dinucleotide in the livers and magnums of laying hens fed a diet rich in riboflavin was determined. Free riboflavin in the liver amounted to 4·3% of the total vitamin, and it was concluded that this tissue does not play any part in the day-to-day metabolism of riboflavin secretion into the egg-albumen. The average amount of free riboflavin in the magnum was 45% of the total vitamin. As an egg passed through the organ, this amount decreased, the decrease being equal to the secretion into the albumen of the egg. It was suggested that riboflavin accumulates in the blood while an egg is in the magnum, and in the magnum during the intervals between the passage of eggs, riboflavin in the albumen being secreted simultaneously with the albumen.

Nelson, M. M., Asling, C. W. & Evans, H. M. (1952). **Production of multiple congenital abnormalities in young by maternal pteroylglutamic acid deficiency during gestation.**—*J. Nutr.* **48**, 61-79. [Abst. from authors' summary.] **1669**

When female rats were fed a diet producing a pteroylglutamic acid deficiency [*V.B.* **21**, 483] from the 9th day after breeding, there was invariably foetal death (resorption); when the same diet was fed from the 11th day after breeding 95% of the rats littered young with multiple congenital abnormalities — marked oedema and anaemia, multiple skeletal abnormalities such as cleft palate and syndactylism, retarded development of the viscera, especially kidneys and lungs, and Morgagnian-type cataracts of the eyes. When the same diet was fed from the 10th day after breeding, 41% of the rats produced small litters of markedly abnormal young. Delaying the deficiency to 12 or 13 days after breeding resulted in 100% litters, the young having milder degrees of oedema and visceral retardation and practically no skeletal abnormalities. Normal young resulted when the deficiency was not started until 15 days after breeding. The authors compared these findings with those for other vitamin deficiencies in the rat.

Cartwright, G. E., Tatting, B., Kurth, D. & Wintrobe, M. M. (1952). **Experimental production of nutritional macrocytic anemia in swine. V. Hematologic manifestations of a combined deficiency of vitamin B_{12} and pteroylglutamic acid.**—*Blood.* **7**, 992-1004. [Abst. from authors' summary.] **1670**

In 20 pigs fed a diet adequate in all known respects except that soya bean protein was substituted for casein, succinylsulphathiazole and a folic acid antagonist were added, and vitamin

B_{12} and pteroylglutamic acid were withheld from the vitamin suppl. Macrocytic anaemia, leucopenia and neutropenia developed, accompanied by erythroid hyperplasia of the bone marrow. The erythroblasts consisted mainly of immature macronormoblasts, but a few atypical megaloblasts were also observed.

The anaemia responded rapidly and completely to the administration of both vitamin B_{12} and pteroylglutamic acid. In pigs treated with pteroylglutamic acid alone there was an immediate return of the blood and bone marrow to within normal limits but after several months there was a partial haematological relapse in spite of continued therapy with this vitamin. In those given vitamin B_{12} alone there was only partial remission of the anaemia and the bone marrow remained macronormoblastic although the megaloblasts tended to disappear.

Growth of the animals was stimulated by the administration of either vitamin, but the administration of both vitamins simultaneously resulted in the greatest rate of growth.

No manifestations of neurological disturbances or of increased pigment excretion were observed in the deficient swine.

MONROE, R. A., SAUBERLICH, H. E., COMAR, C. L. & HOOD, S. L. (1952). **Vitamin B_{12} biosynthesis after oral and intravenous administration of inorganic CO^{60} to sheep.**—*Proc. Soc. exp. Biol., N.Y.* **80,** 250-257. [Authors' summary modified.] **1671**

Excretions and tissues from wether lambs dosed orally and i/v with inorganic cobalt-60 were measured for total radio-activity and also for radio-activity in fractions characterized chemically as vit. B_{12}-like, inorganic and bound. After oral administration there was considerable biosynthesis of vit. B_{12} in the digestive tract, probably occurring mainly in the rumen. After i/v administration there was only slight, if any, biosynthesis in the tract, but considerable formation of vit. B_{12} in the tissues with the suggestion that the adrenal glands and spleen were mainly responsible. Overall, there was more than 10 times as much CO^{60} converted to B_{12} after ingestion than after i/v administration. The concentrations of vit. B_{12}-like CO^{60} in the tissues after i/v inj. were slightly higher than after ingestion of equal amounts of CO^{60}. In the light of results on the response of cobalt-deficient lambs to parenterally administered vit. B_{12}, it is suggested that the vit. B_{12}-like material synthesized by the tissues from inorganic cobalt is physiologically ineffective in relieving cobalt-deficiency symptoms in sheep.

MARIAKULANDAI, A. & MCGINNIS, J. (1953). **The vitamin B_{12} requirement for hatchability of chicken eggs.**—*Poult. Sci.* **32,** 3-7. [Abst. from authors' summary.] **1672**

Crystalline vitamin B_{12}, injected at a 2 μg. level into eggs from vitamin B_{12}-deficient hens, significantly increased hatchability and viability of chicks. The quantitative dietary requirement of vitamin B_{12} for hens, for satisfactory hatchability, was found to be no more than 1 μg. per kg. of diet. The weight of mature birds was not affected by the vitamin B_{12} supplements in this experiment.

SJOLLEMA, B. (1952). Over de opname van mineralen en stikstof door melkkoeien op tetaniebedrijven en over de verklaring van de werking der infusie van calciumchloride en magnesiumchloride bij paresis puerperalis en tetanie van de melkkoe. [**Assimilation of minerals and nitrogen by dairy cows from tetany herds and action of calcium chloride and magnesium chloride infusions in milk fever and tetany.**]—*Tijdschr. Diergeneesk.* **77,** 451-461. [English summary.] **1673**

The curative effect of infusion of a solution containing calcium chloride and magnesium chloride in puerperal paresis and tetany of dairy cows is explained by calculating the amounts of calcium and magnesium available in blood plasma and interstitial fluid. As a rule the diseases mentioned are not caused by a deficient intake of calcium and magnesium, but more probably by a faulty distribution of the intake of some other mineral elements, *eg.* excessive potassium as compared with the amount of sodium, especially in the presence of much phosphate.—A. J. ULTÉE, JR.

MESSERLI, W. (1952). Untersuchungen über die Azetonämie der Milchkühe. [**Ketosis of milch cows.**]—*Schweiz. Arch. Tierheilk.* **94,** 67-80. [English, French and Italian summaries. English summary modified.] **1674**

Acetonaemia in cows has not been mentioned in the Swiss veterinary literature. Over a period of four years the author tested the urine of all suspect animals for the presence of acetone. Out of 106 animals, 13 were positive. In most cases a quantitative analysis was made. Among the 13 positive cows, only 2 showed the classical picture of acetonaemia. They recovered after treatment with chloral hydrate and glucose. A non-progressive case recovered without treatment. In the 10 remaining animals acetonaemia was most probably a secondary condition.

STEWART, H. B. & YOUNG, F. G. (1952). **A substance in animal tissues which stimulates ketone-body excretion.** [Correspondence.]—*Nature, Lond.* **170**, 976-977. **1675**

The isolation from lyophilized horse muscle of a substance which produces ketonuria when administered to normal or diabetic rats was described. It is a white, crystalline substance with a sharp melting point, containing C, H and O and having the properties of a ketone.

—J. A. NICHOLSON.

See also absts. **1696** (*Equisetum* poisoning); **1783** (bibliography of vitamin E).

DISEASES, GENERAL

FREI, W. (1952). Die morphologischen Auswirkungen der Infektionserreger im Tierkörper. (Grundlinien einer allgemeinen pathologischen Anatomie der Infektionskrankheiten.) [**General pathology of lesions caused by micro-organisms.**]—*Schweiz. Arch. Tierheilk.* **94**, 272-279. [English, French and Italian summaries.] **1676**

A classification of the possible effects of the invading organism on the host, and the pathological changes which may result.—ROY MACK.

BÖHM, H. (1952). Versuche mit Ultraschallbehandlung bei einigen Erkrankungen des Hundes. [**Treatment of some diseases in dogs with ultrasonic waves.**] — *Inaug. Diss., Munich.* pp. 44. **1677**

Of a number of conditions treated, pronounced improvement was obtained in cases of acute eczema and some indolent wounds. There was no indication of harmful effects.

—R. MARSHALL.

BELONJE, C. W. A. (1952). **A disease of cattle associated with stomatitis and stiffness.**—*J. S. Afr. vet. med. Ass.* **23**, 141-147. **1678**

The condition described is associated with stiffness confined almost exclusively to the fore quarters. Recovery may take place within 3–5 days, but in some cases evidence of locomotor disturbance may persist for several months. Evidence of nasal and buccal necrosis may accompany the stiffness. No causal organism has been found and attempted transmissions were uniformly negative. Results of serum neutralisation tests excluded Rift Valley fever and bluetongue.—D. LUKE.

BIANCHI, C. (1951). Sulla ipertricosi dei bovini. [**Hypertrichosis in cattle.**]—*Profilassi.* **24**, 5-9. **1679**

B. discussed the aetiology of hypertrichosis in cattle, which often occurs in animals that have recovered from mild attacks of F. & M. disease. Three cattle developed the condition after an outbreak of cattle influenza. B. suggests that it may occur commonly after many acute infectious diseases.—L. BADIALI.

STAŃSKI, F. & RUBAJ, B. (1951). Enzootyczna nagła śmierć świń. [**Enzootic causing sudden death in pigs.**]—*Med. weteryn.* **7**, 527-530. **1680**

The authors described cases of sudden deaths among pigs. As the main changes occurred in the heart it was suggested that an anatomical abnormality of that organ may be the cause. The heart constituted 0·22% of the body wt. Other changes included venous congestion of the liver, the presence of exudate in the abdominal cavity and pallor of the body. [The description of the conditions and of the lesions closely resembles that of the condition known in Gt. Britain as oedema disease of pigs.]—J. R. MITCHELL.

FERLIN, P. (1951). Convulsions du porcelet [**Convulsions in piglets.**] — *Thesis, Paris (Alfort).* pp. 76. **1681**

A general discussion on the circumstances in which convulsions occur in piglets, with emphasis on lack of vitamin A as the principal cause.—D. LUKE.

LECLERCQ, A. G. (1952). La paraplégie du porc. [**Causes of paraplegia in swine.**]—*Thesis, Paris (Alfort).* pp.53. **1682**

A general discussion on paralysis in the pig.—D. LUKE.

OTTEN, E. (1952). Beitrag zur Myositis eosinophilica des Hundes. [**Myositis in dogs.**]—*Tierärztl. Umsch.* **7**, 52-53. **1683**

A clin. account of two cases of myositis in dogs.—ROY MACK.

SERGENT, G. (1952). Actions inattendues d'un phosphate de chaux colloïdal. [**Treatment of corneal opacity with colloid calcium phosphate by intravenous injection: unexpected effects upon respiration under general anaesthesia.**]—*Rec. Méd. vét.* **128**, 622-623. **1684**

S. found that opacity of the anterior chamber of the eye in dogs was cured by a course of i/v injections of colloidal calcium phosphate. In addition it was found possible by the same

method to restore normal breathing in dogs which developed respiratory distress under general anaesthesia.—A.S.

SZÜCS, A. (1952). **Contributions to the etiology of osteomyelosclerosis in fowls.**—*Acta vet. hung.* **2,** 161-168. [In English. Russian summary.] **1685**

This condition is rare in birds under one year old, but in the literature quoted an incidence of 80% or higher has been recorded in older birds. The lesions affect the epiphyses mainly and in advanced cases osseous material may fill the marrow cavity. The aetiology is obscure and the feeding of excess phosphorus and lime had no effect on incidence.—D. LUKE.

DREOSTI, A. E. & MURRAY, J. F. (1953). **Cat-scratch disease: non-bacterial regional lymphadenitis or benign lympho-reticulosis of inoculation.**—*S. Afr. med. J.* **27,** 81-83. **1686**

A report of a case of cat-scratch fever in a child. D. believed this to be the first reported occurrence of the disease in S. Africa. Two photomicrographs were reproduced, illustrating the histological features of the fully developed lesions in the affected axillary lymph nodes which were excised.—F.E.W.

WILLIAMS, E. K. (1952). **Occupational injuries from radiation exposure.** — *Trans. Ass. industr. Med. Offrs.* **1,** 182-185. [Abst. from abst. in *Bull. Hyg., Lond.* **27,** 765. (1952).] **1687**

The occupational hazards studied were partial external or whole-body exposure to X and gamma rays, and to alpha and beta particles, and absorption of radio-active substances by inhalation. Leucopenia is the first of a number of signs of injury.

FRAUCHIGER, E. (1952). Über Nervenkrankheiten bei Haustieren und aus der vergleichenden Neurologie. **[Nervous diseases in domestic animals and comparative neurology.]**—*Wien. tierärztl. Mschr.* **39,** 265-272. [English, French and Italian summaries.] **1688**

A general discussion of the present state of knowledge relating to comparative neurology and the nervous diseases of domestic animals. —A.S.

BRUNTON, C. (1949). **Exophthalmos.**—*Physiol. Rev.* **29,** 260-280. **1689**

B. reviewed published literature on the subject. In g. pigs exophthalmos may be produced by using anterior pituitary thyrotropic hormone and gonadal substances after thyroidectomy, and by cyanides. In order to produce exophthalmos a change must occur in the tension of some orbital muscle or in orbital fluid pressure. B. discussed the evidence relating to orbital structures which have been suggested as possible immediate mechanisms: smooth muscle mechanisms—Müller's orbital muscle, smooth muscle in the anterior and in the posterior part of the orbit, Tenon's capsule; weaknesses of extra-ocular muscles—exophthalmos and muscular weakness with high and with low basal metabolic rate, exophthalmic ophthalmoplegia; infiltration mechanisms — oedema of orbital tissues, fat infiltration; endocrine products and exophthalmos—thyroid extracts, thyroxin and adrenalin, anterior pituitary gland extracts, gonadal products; lid retraction. A bibliography of 141 items was appended.—W. R. BETT.

POISONS AND POISONING

TOMPSETT, S. L. (1952). **Bone and toxic minerals.**—*Brit. J. Nutr.* **6,** 423-426. **1690**

Certain toxic elements, such as fluorine, lead and the radio-active metals are deposited in the skeleton rather than in the soft tissues. T. described the effects of these elements on the bones in which they are deposited.—A.S.

WEATHERBY, J. H. (1952). **Chronic toxicity of ammonia fumes by inhalation.**—*Proc. Soc. exp. Biol., N.Y.* **81,** 300-301. [Author's summary modified.] **1691**

Exposure of male g. pigs to an atmospheric conc. of 170 p.p.m. of ammonia for periods of 6 hours per day, 5 days per week for as long as 12 weeks gave no significant evidence of chronic intoxication. However, such exposure for 18 weeks resulted in relatively mild though definite changes in the spleen, kidneys, adrenal glands, and liver, the severity of the changes being most prominent in the spleen.

SAUTTER, J. H., REHFELD, C. E. & PRITCHARD, W. R. (1952). **Aplastic anemia of cattle associated with ingestion of trichloroethylene-extracted soybean oil meal (Stockman disease, Duren disease, Brabant disease). II. Necropsy findings in field cases.**—*J. Amer. vet. med. Ass.* **121,** 73-79. [Authors' summary modified.] **1692**

The gross and microscopic findings in 13 naturally occurring cases of trichloroethylene-extracted soybean oil meal poisoning in cattle were summarized. From the tissues studied, the

major changes appeared to be necrosis of arterioles and small vessels, thrombosis, rupture, and fibrosis. Some of these findings may have been accentuated by secondary invasion of bacteria through breaks in continuity of the intestinal mucosae since various bacteria were isolated from the tissues. Smears and sections of bone marrow presented, in general, the picture of aplastic anaemia.

CHRISTENSEN, N. O. (1953). Tilfaelde af forgiftning hos svin med dikumarolholdig rottegift. **[Poisoning of pigs with warfarin.]** —*Medlemsbl. danske Dyrlaegeforen.* **36,** 1-10. **1693**

An account of 10 instances of poisoning of pigs by rat bait containing warfarin (a coumarin derivative). Many pigs were involved and some died from the haemophilia-like syndrome characteristically produced by this chemical. Haematological details were given. For curative treatment vitamin K was very effective and several affected pigs were saved.—J. EDWARDS.

MORQUER, R., RIVALS, P. & ANDRAL, L. (1952). Une plante dangereuse pour le bétail: le *Galega officinalis.* [*G. officinalis,* **a plant poisonous to animals.**]—*Rev. Méd. vét.* **103,** 327-342 & 390-399. **1694**

A comprehensive review with 44 references. The plant, a legume, is spreading in sandy areas of France and the seeds are toxic to ruminants if eaten in hay. The active principle, a guanidine derivative accompanied by a flavanol, is a cardiac poison; symptoms and fatalities were described.—K. J. SINCLAIR.

KRALJ, M. (1951). Otrovanje konja bujadi. **[Bracken** (*Pteris aquilina*) **poisoning in horses.]** — *Vet. Glasnik.* **5,** 53-60. [In Croat. Germany summary.] **1695**

Bracken poisoning became manifest in horses after they had been fed 9–10 lb. of bracken daily for 1–2½ months. The main symptoms were ataxia and paresis and, in severe cases, paralysis of the extremities.—I. MARTINI.

FORENBACHER, S. (1952). Schachtelhalmvergiftung der Pferde—eine B_1-Avitaminose. **[Equisetum poisoning of horses—a vitamin B_1 deficiency.]**—*Schweiz. Arch. Tierheilk.* **94,** 153-170. [English, French and Italian summaries.] **1696**

Poisoning with hay containing *Equisetum* is common in parts of Yugoslavia. Symptoms were found to correspond with those of vitamin B_1 deficiency. Administration of the vitamin prevented or cured the condition. F. discussed the pathogenesis.—ROY MACK.

SCHIMKE, J. (1950). Untersuchungen über Vergiftungserscheinungen beim Pferd nach Verfütterung von Schwedenklee (Trifolium hybridum L). [*Trifolium hybridum* **poisoning in horses.**]—*Mh. prakt. Tierheilk.* **2,** 144-158. **1697**

A detailed account of poisoning in 24 horses on two farms from eating *T. hybridum* cut in flower.—E. WALLICZEK.

PONSETI, I. V. & BAIRD, W. A. (1952). **Scoliosis and dissecting aneurysm of the aorta in rats fed with** *Lathyrus odoratus* [sweet pea] **seeds.** —*J. infect. Dis.* **28,** 1059-1077. [Authors' summary modified.] **1698**

White rats fed a diet containing 50% *L. odoratus* seeds all developed kyphoscoliosis, which appeared to result from osteoporosis and collapse of vertebrae. Paraplegia developed in 2 rats with very severe kyphoscoliosis and cord compression. Aneurysms of the thoracic aorta were seen in 6 of the 8 animals which died intercurrently. They developed when the vertebral deformity was still mild. No toxic lesions were demonstrable in the liver, kidneys, or other organs.

L. odoratus seeds appear to contain a toxic factor which affects the formation of organic bone matrix, the aorta, and possibly other mesodermal structures.

MIKOŁAJEWSKI, A. (1950). Zatrucia żytem u owiec. **[Rye "poisoning" in sheep.]**—*Med. Weteryn.* **6,** 26-27. **1699**

Sporadic cases of "poisoning" were noted in winter and early spring when rye was incorporated in the ration. Mass outbreaks were not uncommon. Loss of appetite, ruminal stasis after diarrhoea and stiffness of the joints were the common signs. Sporadic cases escaping attention may result in sudden death.

—JOHN R. MITCHELL.

See also absts. **1648** (lucerne "poisoning" in horses); **1773** (report, Gt. Britain); **1777** (report, Australia).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

SCHMIDT-TREPTOW, W. A. (1952). Biologische Heilmethoden in der tierärztlichen Praxis. **[Physical methods of treatment in veterinary practice.]**—*Prakt. Tierarzt.* No. 5. pp. 7-10; No. 6. pp. 10-14. **1700**

With the introduction of the sulphonamides

and antibiotics, older methods of treatment have fallen into disuse, but the author considers that such treatments as venesection, the re-injection of homologous blood, hydrotherapy, massage, etc. are still of great value in that they assist the defence mechanism and healing powers of the body. This is of great importance now that so many infectious agents are becoming resistant to the newer drugs.

—J. A. NICHOLSON.

DANIELLI, J. F. (1952). **Separate nuclear and cytoplasmic actions of drugs.**—*Nature, Lond.* **170,** 1042-1044. **1701**

The techniques of cell enucleation and nuclear transfer have made it possible to study the action of drugs on cell nuclei as distinct from cell cytoplasm. Enucleation shows that many cell processes continue in the absence of the nucleus but cell death occurs sooner or later. The nitrogen mustards attack both the cytoplasm and the nucleus whereas X-rays are highly selective for the nucleus.

—J. A. NICHOLSON.

FRANCIS, J. (1953). **The distribution of sulphone in the tissues of various animals.**—*J. comp. Path.* **63,** 1-6. **1702**

A study of the concentration of sulphone in the blood and various tissues of treated mice, pigs, dogs, sheep and cattle. With the exception of the cattle, all animals studied exhibited a greater conc. in the liver and skin than in the blood. F. considered that this lower conc. in the tissues of cattle might partly explain the lower toxicity of sulphone for these animals. Concentrations of the drug in the brains of sheep were only slightly lower than in the blood, while in cattle they were much lower, which may perhaps explain the greater tendency in sheep to develop nervous symptoms during treatment. Similarly in young mice, which are known to develop nervous symptoms more frequently than older mice, the conc. in the brain was greater, both relatively and absolutely, than in old mice.—A.S.

SMITH, L. W. & WALKER, A. D. (1951). **Penicillin decade 1941-1951. Sensitizations and toxicities.** pp. 122. Washington, D.C. Arundel Press Inc. $2.50. **1703**

The authors discuss data relating to untoward effects of penicillin therapy during the first ten years of its clinical use, *i.e.*, chiefly from the time of rapid development of processes for improving yields, potencies, purity and clinical effectiveness, continuing with the commercial development of penicillin G, and the later use of procaine penicillin. The reaction patterns following treatment with each form of penicillin are discussed. Mention is made of more recent preparations, such as allylmercaptomethyl penicillin and 1-ephenamine penicillin (a salt of 1,2-diphenyl-2-methylaminoethanol), reported to be effective in many cases which are sensitive to other available forms of penicillin.

—E. MARSH JONES.

WORDEN, A. N. & WATERHOUSE, C. E. (1952). **A note on the oral administration of chlorophyll to the dog.**—*Vet. Rec.* **64,** 573-574. [Abst. from authors' summary.] **1704**

A preparation containing water soluble chlorophyll in tablet form was found to control the mouth odours of 6 dogs chosen for experiment: its effect upon odours associated with the coat and adherent material was, however, negligible. Repeated administration of the preparation to 3 bitches during oestrus and prooestrous did not in any way reduce their attraction for male dogs, nor prevent attempts by dogs to mate with them during oestrus.

KLIEWE, K. & v. WASIELEWSKI, E. (1952). Physikalische Eigenschaften von keimtötenden Aerosolen und künstlichen Keimnebeln. [**Aerosols.**]—*Z. Hyg. InfektKr.* **134,** 1-23. **1705**

When using aerosols for air disinfection, large air currents in the room to be disinfected must be avoided; if germ-free air is required, aerosols should be used every 2–3 hours; where partial purification suffices, aerosols should be used every 4–5 hours. Temperature and relative humidity of the air influence the duration of suspension of bacteria and the effect of aerosols.—W. R. BETT.

See also absts. **1436** (terramycin); **1446-1448** (isoniazid); **1454** (sulphapyridine); **1461** (nitrofurazone); **1466** (chloramphenicol); **1472** (penicillin); **1474** (aureomycin); **1476** (subtilin); **1488-1489** (phenanthridine compounds); **1491** (dourine); **1494** (A.C.T.H., cortisone, sphingomyelin, sphingosine and phenergan); **1498-1499** (trichomoniasis); **1501-1502** (histomoniasis); **1503** (coccithane); **1546-1547** (mepacrine and trypan red); **1596-1597** (cortisone); **1609** (sarcoptic mange); **1611** (toxaphene); **1621** (filariasis); **1631** (aureomycin); **1632, 1635, 1636, 1640** and **1641** (antibiotics); **1633-1634** (aureomycin); **1637-1638** (penicillin); **1639** (aureomycin); **1642** (terramycin); **1677** (ultrasonic waves); **1785** (pharmacopoeia).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

MILES, A. A. & MILES, E. M. (1952). **Vascular reactions to histamine, histamine-liberator and leukotaxine in the skin of guinea-pigs.**—*J. Physiol.* **118,** 228-257. **1706**

The spread of a vital dye from the capillaries following the i/d inj. of histamine, histamine liberator 48/80 and leucotaxine was studied in g. pigs. It was concluded that leuco-

taxine, a polypeptide complex isolated from sterile inflammatory exudates, increases capillary permeability by liberating histamine.
—J. A. NICHOLSON.

ENGEL, M. B. (1952). **Mobilization of mucoprotein by parathyroid extract.**—*Arch. Path.* **53,** 339-351. **1707**

Studies on rats suggested that parathyroid hormone caused depolymerization of the glycoproteins in the bone matrix. There was an associated rise in the level of serum mucoprotein.—JOHN SEAMER.

WYLER, R. (1952). Über die Pigmentierung der Rinderlymphknoten. [**Pigmentation in the lymph nodes of cattle.**]—*Acta anat.* **14,** 365-382. **1708**

The medulla of normal lymph nodes of cattle is very often brown or black in colour and this increases with age and is best marked in the lymph nodes of the mesentery, of the lungs and of the udder. There is no such pigmentation in calves. The pigment is in the form of intra- and extracellular, round or irregular granules, measuring 1–2 μ and giving the same reactions as lipofuscin.

PRICHARD, M. M. L. & DANIEL, P. M. (1953). **Arterio-venous anastomoses in the tongue of the dog.** — *J. Anat., Lond.* **87,** 66-74. [Authors' summary copied *verbatim.*] **1709**

The arterio-venous anastomoses in the corium of the dog's tongue have been studied in injected preparations and histologically. These vessels form direct communications between arteries and veins which respectively supply and drain the subepithelial capillary plexus. They run a more or less tortuous course. They have a very thick wall, the media of which contains smooth muscle cells and epitheloid cells in large numbers but in variable relative proportions. The vessels have no internal elastic lamina, and in fixed preparations the lumen is usually very small. Their situation and great numbers, particularly on the dorsum, suggest that these vessels when open allow a large volume of blood to pass through the superficial parts of the tongue without overburdening the subepithelial capillary bed.

LÜTTSCHWAGER, H. (1950). Kritische Bemerkungen zur Unterscheidung der Gattung Bison und Bos an dem Astragalus-Knochen. [**Critical observations on the differentiation between *Bison* and *Bos* on the basis of the astragalus bone.**]—*Anat. Anz.* **97,** 385-387. **1710**

L. claimed that previous study suggesting a means of differentiation between these two genera on the grounds of the nature of the astragalus (tibia tarsal) bone cannot be substantiated.—C. W. OTTAWAY.

DYCE, K. M., MERLEN, R. H. A. & WADSWORTH, F. J. (1952). **The clinical anatomy of the stifle of the dog.**—*Brit. Vet. J.* **108,** 346-353. **1711**

The peculiar nature of the stifle joint presents it as an area of great interest to the anatomist and clinician. The authors reviewed the normal anatomy of the joint with particular emphasis on its two functional components, the extensor mechanism of the quadriceps—patella—tibial complex and the true hinge of the femoral—menisci—tibial contact wherein gliding and not rotation of the menisci was observed. An analysis of the responsibility of the cruciate ligaments suggests them as being more concerned with maintaining apposition of the component parts than with limiting flexion and extension of the joint. The more common injuries due in this region as much to internal stresses as external trauma were reviewed in the light of these anatomical findings. A series of X-rays illustrates the principle that knowledge of the normal joint is necessary before the abnormal can be correctly interpreted. Among these illustrations are views of air injections acting as a negative contrast agent to delimit the synovial areas.—C. W. OTTAWAY.

WINGSTRAND, K. G. (1951). **The structure and development of the avian pituitary. From a comparative and functional viewpoint.** pp. 316. Lund, Sweden: C. W. K. Gleerup. Kr. 18. [In English.] **1712**

Little need be said about this book—it is a monumental work. The subject is discussed systematically, materials, methods, general anatomy, the adult adenohypophysis, its histogenesis, morphology and histology, compared with that of reptiles and mammals. Similar chapters follow on the neurohypophysis. Finally there are chapters on the blood and nerve supplies, with comparative notes, and a discussion of some functional aspects of the neurohypophysis. The histological techniques used are based mainly on Romeis and are those of the classical German school. In his introduction the author says modestly: "The literature concerning the pituitary gland in general is enormous and I admit that I have not seen all of it". Notwithstanding this, thirteen pages of the monograph are devoted to a list of references.

In general presentation, *i.e.*, line drawings, photomicrographs, type and type setting, this book is a model of clarity.—L. M. MARKSON.

HART, D. S. (1953). **Additional photoperiodic response in sheep.** [Correspondence.] — *Nature, Lond.* **171,** 133-134. **1713**

It is known that amounts of light received through the eye of the sheep stimulate production of sex hormones. In this work, it was shown that wool growth varied directly with exposure of the sheep to light.—G. B. S. HEATH.

See also absts. **1581** (anatomical approach to poliomyelitis); **1786** (annual review of biochemistry).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

LUDLAM, G. B. (1952). *Staphylococcus aureus* **in a slaughterhouse.**—*Mon. Bull. Min. Hlth Lab. Serv.* **11,** 138-142. **1714**

Contamination of carcass meat with *Staph. aureus* is common even when animals have been slaughtered and carcasses dressed under reasonably clean conditions. The risk to the public is, however, small if the meat is kept cool and clean until cooked.—R. MACGREGOR.

BLANCHARD, L. & PANTALÉON, J. (1952). Dosage des nitrites en inspection des viandes. **[The importance of nitrite content in the inspection of pickled meat.]**—*Rec. Méd. vét.* **128,** 425-431. **1715**

Brown or green discoloration of pickled meat is caused by nitrites in the brining liquid, these forming methaemoglobin instead of nitrosohaemoglobin which gives a stable red colour. The authors gave details of tests for nitrites in brine and in pickled meat.—R. MACGREGOR.

SENS. (1950). Zur Pasteurisation der Enteneier in Holland. **[Pasteurization of duck eggs in the Netherlands.]**—*LebensmTierarzt.* **1,** 151-152. **1716**

Two per cent of ducks from farms in the Ermelo district, Holland, reacted positively to blood tests for salmonella. S. advocated testing of both contents and shells of eggs from positive reactors, particularly of those soiled by faeces.

—H. DE BARTOS RIVALIER.

KOROPOV, V. M. (1952). **[Veterinary work in the U.S.S.R. during 1917-1920.]**—*Veterinariya, Moscow.* **29,** No. 1. pp. 8-18. [In Russian.] **1717**

A reference to livestock losses and the spread of infection in the U.S.S.R. during and in the period immediately following the first world war. Government decrees issued in 1919 and 1920 dealing with the establishment of veterinary services and measures to be adopted to eradicate epidemics were given *verbatim.*—F.A.A.

BERGSMA, D. (1952). **The veterinarian's responsibility in civil defense.**—*Amer. J. publ. Hlth.* **42,** 1095-1098. **1718**

In any civil defence emergency veterinarians are responsible for protecting protein food sources, safeguarding human beings from animal diseases and co-operating in sanitation, injury or irradiation problems.—L. M. JONES.

THEILE, H. (1952). Rückblick und Ausblick. Kurze Studien über die Entwicklung des Veterinärwesens in der DDR. **[Veterinary services in East Germany.]**—*Mh. VetMed.* **7,** 322-324. **1719**

An account in general terms of the outlook for the state veterinary service of the German Democratic Republic after its administrative release from its subordinate role to the livestock service to which it had been attached since the end of the second world war.—J. EDWARDS.

REPRODUCTION AND REPRODUCTIVE DISORDERS

ANON. (1950). Nuova disciplina della fecondazione artificiale in Italia. **[New regulations governing the application of artificial insemination in Italy.]**—*Zootec. Vet., Milan.* **5,** 333-334. **1720**

An account of the regulations issued by the Italian Board of Agriculture in 1949 and 1950 concerning the establishment of A.I. centres and sub-centres and the use of A.I. on farms. Semen must satisfy certain standard requirements; its collection, examination, dilution, storage, transportation and use were dealt with and instructions were given for insemination of horses, sheep and pigs.—L. BADIALI.

LORIGA, G. (1950). La fecondazione artificiale in un allevamento Sardo. **[Artificial insemination in Sardinia.]**—*Zootec. Vet., Milan.* **5,** 324-332. [English summary.] **1721**

Details were given of the application of A.I. on a large farm with 5,000 cattle. When egg yolk-citrate diluent is used semen retains its fertility for a max. storage period of 3 days in May-Oct. and for a max. of 5 days in Nov.-May. The optimal time for insemination of heifers is considered to be 12–24 hours after the onset of oestrus and for cows 24–30 hours after onset.—L. BADIALI.

CEMBROWICZ, H. J. (1952). **Fertility levels of bulls kept at an artificial insemination centre.** —*J. agric. Sci.* **42,** 323-334. [Abst. from author's summary.] **1722**

The present method [% non-returns at 3 months] of estimating preliminary results in A.I. practice bears a definite relation to calving percentages, and, with few exceptions, may be generally adopted as a true measure of fertility. Single factors, such as an individual bull with a low conception rate, a new and less efficient inseminator, or variations in the results obtained at Sub-Centres, etc., do not noticeably affect the average monthly conception rate in a large A.I. Centre. The most important influencing factors have been found to be the choice of diluent, and in some cases the elimination of the use of stored semen.

No significant variation in fertility occurs with the season of the year, the age of the bull or the area of operation; but to achieve good results the psychology of individual bulls should be closely studied.

It can be concluded that the present methods of evaluation of semen samples are up to a point satisfactory. A diluent or buffer may influence the conception rate considerably, and C. considers that the egg yolk-citrate diluent used at his Centre has its own fertility level. In a Centre with a large team of bulls there must be some variation in fertility levels between individuals; but whereas bulls in natural service fall obviously into categories of high or low fertility, this division tends to disappear in A.I. with the application of the various techniques.

ERB, R. E. & WALDO, D. R. (1952). **Seasonal changes in fertility of dairy bulls in north-western Washington.**—*J. Dairy Sci.* **35,** 245-249. [Abst. from authors' summary.] **1723**

The per cent. 60- to 90-day non-returns to 93,113 first- and second-service inseminations for bulls used for artificial breeding purposes over a 6-year period were tabulated. Monthly variation was highly significant, with Jan. showing the lowest and Sept. the highest average non-return rates. Non-return rate was lowest from Jan. to April and gradually increased to the highest level in Sept., Oct. and Nov.

Monthly correlations of sperm conc., initial motility, motility after 30-min. incubation at 45°C., and drop in motility during incubation with non-return rates revealed great variation in the relationships from one period of the year to the next. Only 591 semen samples collected during one year were involved, but the data strongly suggest that the value of semen quality measurements cannot be accurately estimated during experimental periods of less than one year.

DIMITROPOULOS, E. (1951). **[Vitamin E and spermatogenesis of the bull.]**—*Delt. Hellen. kten. Hetair.* **2,** 163-168. [In Greek. French summary.] **1724**

Measurements on the semen of two bulls given sprouted wheat showed a clear improvement in motility, but not in other characteristics. One bull was first given synthetic vitamin E and wheat germ oil without effect.

—J. M. TAIT.

PRABHU, S. S. & BHATTACHARYA, P. (1951). **Comparison of first and second ejaculates collected in rapid succession from the Indian water-buffalo** *Bos bubalis.*—*Indian J. vet. Sci.* **21,** 257-262. **1725**

It had been found that in dairy bulls (*Bos taurus*) the second ejaculate is of greater volume than the first, besides containing a greater concentration of spermatooza. [HERMAN & SWANSON, *V.B.* **12,** p. 426.] After comparison between pairs of ejaculates collected in rapid succession at weekly intervals the authors could establish no such distinction between the first and second ejaculates of Indian water-buffaloes. Second ejaculates did, however, tend to contain fewer dead or slightly abnormal spermatozoa and may therefore be slightly superior for routine use.—A.S.

ORTAVANT, R. (1952). Recherches sur la spermatogenèse des animaux domestiques. Etude des réserves spermatiques chez le bélier. **[Spermatogenesis in the ram.]**—*C. R. Soc. Biol., Paris.* **146,** 1086-1089. **1726**

A method of comparing the number of testicular spermatozoa and epididymal reserves. Statistical results were based on an experiment using 25 rams.—IAN NEWSAM.

EATON, O. N. & SIMMONS, V. L. (1952). **A semen study of goats.**—*Amer. J. vet. Res.* **13,** 537-544. **1727**

Study of semen of Toggenburg and common American goats over 3 consecutive years, gave an average vol. of 0·65 ml. per ejaculate, good motility, and concentration of 2·7 million spermatozoa per cu. mm. The average proportion of abnormal spermatozoa was 8·46%. Variations in volume, density and motility follow fairly closely the pattern observed in other domestic animals.—J. M. SWANNEY.

WEAKLEY, C. E. & SHAFFNER, C. S. (1952). **The fertilizing capacity of diluted chicken**

semen.—*Poult. Sci.* **31,** 650-653. [Authors' summary slightly modified.] **1728**

The assumption was made that the ideal diluent for fowl semen would be the natural serum of the semen obtained when the spermatozoa were removed by centrifuging. This serum was used to dilute whole semen in ratios varying from 1:3 to 1:80 and the fertility resulting from insemination with diluted semen compared with that secured with undiluted semen. Fertility was recorded for 2 weeks following a single insemination with 0·1 ml. of semen. Semen diluted as much as 1:10 provided fertility that compared favourably with that from undiluted semen. Dilutions greater than 1:10 showed a marked decrease in fertilizing capacity and the decrease in general was proportional to the dilution. Semen diluted as much as 1:80 produced an average of 32% fertility as compared with 75% for the undiluted semen. These data, however, include only those eggs laid by the hens laying at least one fertile egg following insemination. With the high dilutions there was a marked decrease in the percentage of hens fertilized.

KARRAS, W. (1952). Das Spermiodensimeter, seine Entwicklung und Anwendung. **[An optical instrument for measuring density of semen.]**—*Fortpfl. Besamung Haustiere.* **2,** 5-7. [Published in *Deutsche tierärztliche Wochenschrift.* **59,** Nos. 3-4.] **1729**

K. described apparatus for the measurement of the opacity of bull semen and provided tables whereby the concentration of spermatozoa in the semen after varied dilution can be calculated. The method is more rapid and virtually as accurate as direct enumeration.

—J. EDWARDS.

TYLER, A. & TANABE, T. Y. (1952). **Motile life of bovine spermatozoa in glycine and yolk-citrate diluents at high and low temperatures.** —*Proc. Soc. exp. Biol., N.Y.* **81,** 367-371. [Authors' summary modified.] **1730**

The addition of glycine, at concentrations of 0·009 to 0·038 molar, to a balanced salt diluent, considerably increased the motile life-span of bovine sperm at 38·6°C. The effect was manifest in 1:1000, but not in 1:100, dilutions of semen. It was not exhibited at 4°C. In yolk-citrate the usual extension of life-span was obtained at 4°C., but at 38·6°C. there was either no significant effect or a decrease as compared with the balanced salt solution controls. The results were discussed in relation to experiments on sperm of invertebrates and fowl in which the life-span extending action of amino acids is attributable to the binding of trace metals present in the dilution medium.

SCHULTZE, A. B. & MAHLER, D. (1952). **The effect of sodium arsenite on the respiration of bovine semen and the relation of this response to the fertilizing ability of semen.**—*J. Dairy Sci.* **35,** 906-909. [Authors' summary copied *verbatim.*] **1731**

Treatment of bovine semen with a low concentration of buffered sodium arsenite (5×10^{-10} M) increased the mean O_2 uptake of the semen studied. A high concentration (10^{-5} M) slightly decreased the mean O_2 uptake and a still higher concentration (10^{-3} M) decreased O_2 uptake when compared to O_2 uptake of untreated semen. The response of O_2 uptake to sodium arsenite varied greatly according to the individual semen sample. When the individual semen sample response was related to the fertilizing capacity of the semen, a negative relationship was found. The degree of relationship was statistically significant but not close enough to be of practical value for accurate prediction of semen quality.

POLGE, C. & LOVELOCK, J. E. (1952). **Preservation of bull semen at −79°C.**—*Vet. Rec.* **64,** 396-397. [Authors' summary slightly modified.] **1732**

Polge and Rowson [*V.B.* **22,** 3201] recently reported that bull semen equilibrated with glycerol to a final conc. of 10% can be frozen to −79°C. and subsequently used effectively for A.I. The present paper describes apparatus designed to facilitate the practical application of these results.

POLGE, C. & ROWSON, L. E. A. (1952). **Results with bull semen stored at −79°C.**—*Vet. Rec.* **64,** 851. **1733**

Semen diluted to varying degrees and stored, up to 32 weeks, at −79°C. gave a conception rate of 66·3% in 285 cows.

—IAN NEWSAM.

FIORENTINO, A. (1952). L'emploi du lait écrémé dans la dilution du sperme de taureau. **[Skim milk as a semen diluent.]**—*Rep. IInd Int. Congr. Physiol. anim. Reprod., Copenhagen,* 1952. Addendum. pp. 12-20. [In French. English and German summaries.] **1734**

Production method of an easily prepared, inexpensive diluent for bull semen which gives an enhanced storage potential for the spermatozoa.—IAN NEWSAM.

JACQUET, J. & CASSOU, R. (1952). Nouvelles recherches sur un milieu à base de lait écrémé en vue de la dilution et de la conservation du sperme de taureaux. **[Skim milk as a diluent for bull semen.]**—*Bull. Acad. vét. Fr.* **25,** 149-156. **1735**

The authors gave details of a standardized powdered milk which they recommended in place of liquid milk as a semen diluent.

—IAN NEWSAM.

MELROSE, D. R. (1952). **Evaluation of semen quality by the fructose utilisation test.**—*Brit. Vet. J.* **108,** 260-268. [Author's summary slightly modified.] **1736**

The fructose utilisation test was carried out on 39 normal samples of semen from 13 bulls, in order to examine the correlation between fructolysis indices and fertility. Fertility records were obtained for 29 of the samples from 8 of the bulls tested, and in only 3 of these bulls could a significant correlation be found between the conception rate and fructolysis index (first hour). The initial fructose levels of the semen from the same bulls collected on different dates varied considerably. One highly fertile bull, from which the semen quickly loses its motility on storage, consistently gave a low fructolysis index.

HOLT, A. F. (1952). **Variation in diluter composition and its effect on the fertility of bovine semen.**—*Vet. Rec.* **64,** 818. [Author's summary copied *verbatim.*] **1737**

A split sample trial was run to examine the effect of reducing the proportion of egg yolk to citrate buffer to 1:4 in bull sperm diluter. No significant effect was found when compared with the usual 1:1 egg yolk buffer mixture.

ADLER, H. C. & RASBECH, N. O. (1952). **Investigations into the effect of antibiotics on fertility of bull semen with special reference to the employment for semen of *Vibrio fetus* transmitting bulls.**—*Rep. IInd Int. Congr. Physiol. anim. Reprod., Copenhagen,* 1952. **3,** 168-174. [In English. French and German summaries.] **1738**

Semen from 104 bulls, 11 of which were known *V. fetus* carriers, was treated with streptomycin and significantly improved conception rates resulted. Addition of neomycin to semen failed to enhance conception rates.

—IAN NEWSAM.

FECHHEIMER, N. S., LUDWICK, T. M. & ELY, F. (1952). **A method for the intrauterine insemination of certain cows.**—*J. Dairy Sci.* **35,** 808-812. [Authors' summary modified.] **1739**

A method for the intra-uterine artificial insemination of cattle with impenetrable crevices. The horns of the uterus were located by touch from within the rectum, and semen injected into each horn directly through the rectal wall by means of a needle introduced *per rectum.* Evidence indicated that the physical and physiological damage caused by the technique was negligible. 3 out of 4 cows inseminated in this way gave birth to normal, healthy calves. The technique was considered valuable for using cows which would otherwise be slaughtered after failing to conceive in the normal way.

STEWART, D. L. & MELROSE, D. R. (1952). **The comparative efficiency of the intra-cervical and intra-uterine methods of insemination in the dairy cow.**—*Vet. Rec.* **64,** 605-607. [Abst. from authors' summary.] **1740**

In a study of comparative efficiency of the intra-cervical and intra-uterine deposition of semen in the artificial insemination of dairy cattle, using the recto-vaginal technique, the results of 8,833 first inseminations made by 12 inseminators disclosed no significant difference in conception rates. When 5 normal pregnant cows were subjected to intra-uterine insemination, pregnancy was interrupted in every case, but when the intra-cervical method was used on 10 similar cows, 8 remained pregnant. The authors concluded that the intra-cervical site is preferable.

VANDEMARK, N. L., SALISBURY, G. W. & BOLEY, L. E. (1952). **Pregnancy interruption and breeding techniques in the artificial insemination of cows.**—*J. Dairy Sci.* **35,** 219-223. [Authors' summary modified.] **1741**

The effects of A.I. techniques on maintenance of pregnancy in cows between the 64th and 152nd day of pregnancy were compared. Using semen diluted with sodium citrate-sulphanilamide-yolk, 7 cows were inseminated by the rectovaginal technique with mid-cervical deposition of semen and 8 cows with intra-uterine semen deposition. All cows that received mid-cervical semen depositions continued normal pregnancies and had normal intact foetuses and foetal membranes when slaughtered 18 to 44 days later. Of 8 cows inseminated just into the uterus, one aborted 9 days after the insemination. The remaining cows of this group had foetal resorptions as manifested by a purulent discharge prior to slaughter and the presence of disintegrated foetuses and foetal bones upon slaughter 18 to 77 days following the insemination. In 4 of 6 cows inseminated into the uterus with diluted semen containing added penicillin and strepto-

mycin, normal pregnancies continued, while pregnancy was interrupted in the other 2. Therefore, mid-cervical deposition of the semen by the rectovaginal technique is recommended for A.I. of cows.

BROCK, H. & ROWSON, L. E. (1952). **The production of viable bovine ova.**—*J. agric. Sci.* 42, 479-482. [Abst. from authors' summary.] 1742

The authors compared the effect of various forms of pregnant mare's serum (P.M.S.) on the cow's ovaries by giving 3,000 i.u. of: (a) processed P.M.S., (b) fresh whole P.M.S., (c) freeze-dried P.M.S.; the av. follicle numbers produced being 13·9, 20·1 and 14·5 respectively. The effect of the time interval between the injection of P.M.S. or luteinizing hormone and oestrus was studied in the presence and absence of a corpus luteum. The time factor was found to have a direct relationship to the ovulation percentage (in the absence of the corpus luteum 11·6% at 2 days' to 86·2% at 7 days' interval), but there were limits beyond which degeneration of the ova occurred. It is believed that the best interval to aim at is 5 days.

Evidence of the susceptibility of the uterus to infection when under the influence of a corpus luteum and its resistance to infection when under oestrogens was found. The culture of eggs in serum and in follicular fluid was attempted with very limited success.

MCENTEE, K., ROBERTS, S. J. & SEARS, R. M. (1952). **Prolonged gestation in two Guernsey cows.**—*Cornell Vet.* 42, 355-359. 1743

Two pregnancies were terminated by slaughter at 464 and 473 days respectively. The foetuses weighed 50 and 62 lb. and had similar developmental abnormalities.

—C. C. BANNATYNE.

OLSON, C., JR., COOK, R. H. & BROUSE, E. M. (1952). **The reproductive ability of heifers recovered from bovine hyperkeratosis.**—*J. Amer. vet. med. Ass.* 120, 186-189. 1744

The breeding history of 94 heifers showed no abnormality which could be correlated with the severity of their previous symptoms of hyperkeratosis.—E. A. GIBSON.

AUSTIN, C. R. (1952). **The development of pronuclei in the rat egg, with particular reference to quantitative relations.**—*Aust. J. sci. Res.* Ser. B. 5, 354-365. 1745

The stages of development of pronuclei were studied by phase-contrast microscopy of living eggs freshly recovered from rats at various times after mating. Six arbitrary stages, based on the changes occurring in the male pronucleus, were described, and the relative duration of each *in vivo* estimated. The volumes of the pronuclei and nucleoli and the total surface areas of nucleoli were calculated for each stage. The values for each of these functions in the male pronucleus were approx. twice those in the female pronucleus.

—A. W. BRADEN.

KAMMLADE, W. G., JR., WELCH, J. A., NALBANDOV, A. V. & NORTON, H. W. (1952). **Pituitary activity of sheep in relation to the breeding season.**—*J. Anim. Sci.* 11, 646-655. [Authors' summary modified.] 1746

The total gonadotrophic potency of pituitaries during the non-breeding season of sheep is uniformly higher than during the breeding season. There is a distinct and significant drop in gonadotrophic activity at the time of the first heat period of the breeding season.

Using average follicle diam. or the diam. of largest follicle as the criterion, ovaries are as active during the non-breeding season as during the breeding season, though there are significantly more follicles during the breeding season than during the anoestrous period ($26{\cdot}2 \pm 2{\cdot}1$ *vs.* $19{\cdot}0 \pm 0{\cdot}83$). The equality of diameter, and the presence of appreciable numbers of follicles during anoestrus may be taken as evidence that some gonadotrophic hormone is secreted by the pituitary during the non-breeding season. On the basis of these findings it appears that anoestrus is due to an imbalance between FSH and LH. The observed high gonadotrophic potency during anoestrus is thought to be due to an increased production of FSH with LH remaining unchanged or dropping in amount. These observations contradict the assumption that the non-breeding season is due to inactivity of the anterior lobe of the pituitary.

STEPHENS, W. H. & THOMPSON, D. S. (1952). **The effects of stilboestrol on lambs. Part I. The effect on suckling lambs. Part II. The effects of successive doses of stilboestrol on weaned lambs.**—*Tasm. J. Agric.* 23, 291-293 & 294-297. [Authors' summaries modified.] 1747

I. The implantation of 15 mg. stilboestrol significantly increased the gains made by lambs treated while running with their dams but weaned during the trial. The response was greatest when the lambs were thriving. There was a marked sex response. Treated ewes gained faster than treated wethers, whereas in the controls, the wethers made faster gains than the ewes.

There was a marked but individually varying development of external genital organs with no correlation between the amount of this development and individual gains in wt.

It is concluded that under the conditions of this trial, the administration of stilboestrol to unweaned lambs resulted in economic gains, especially in ewe lambs.

II. The implantation of 15 mg. stilboestrol significantly increased the gains made by weaned lambs grazing on improved pastures in the autumn. Where consistent gains were not maintained, there was no significant difference in gains made by lambs receiving one initial dose and those receiving 2 and 3 doses at monthly intervals. There was an insignificant depression of growth rate following successive doses. Ewe lambs gained faster than wether lambs. Lambs lost wt. during March and April while grazing on improved pasture. Wt. losses were greater in wether lambs than ewe lambs, irrespective of treatment. Marked effects on the external genital organs were observed. Some significance is attached to the presence of preputial ulcers in several treated lambs.

PEARSON, A. M., COMBS, G. E., JR., WALLACE, H. D., SLEETH, R. B., STROUD, J. W., SHEPHERD, J. M. & KOGER, M. (1952). **The effects of stilbestrol implants on swine of different sexes.**—*J. Anim. Sci.* **11,** 251-260. **1748**

Gilts showed marked signs of oestrus within 24 hours of implantation. The implants had no effect on the fertility of the boars. Weight gains were not materially affected in either gilts or hogs, but the growth of boars was depressed. Grading of the carcasses was not affected and there was no improvement in the quality of meat from either boars or hogs.

—D. LUKE.

CATTANEO, P. & RUSSO, M. (1950). L'azione biologica della prolattina. Nota I. Rilievi su uteri di cavie trattate con estrogeni e prolattina. [**Biological action of prolactin. I. Data on the uterus of the g. pig when treated with oestrogens and prolactin.**]—*Clin. ostet.* **25,** 261-274. **1749**

In tests on g. pigs an antagonism between prolactin and a synthetic oestrogen (dihydrofolliculin dipropionate) was established.—E.G.

BIGGERS, J. D. (1952). **Response of the vaginal epithelium of the ovariectomized mouse to the systemic and local administration of oestrone.** [Correspondence.]—*Nature, Lond.* **170,** 895-896. **1750**

A comparison of the time of onset and duration of vaginal cornification in mice treated with oestrone subcutaneously or intravaginally showed that cornification occurred 12 hours earlier after the local application. The dose level made no difference to the time of onset of cornification.—J. A. NICHOLSON.

FRIEDEN, E. H. & VELARDO, J. T. (1952). **Effect of relaxin upon decidual reactions in the rat.**—*Proc. Soc. exp. Biol., N.Y.* **81,** 98-103. [Authors' summary modified.] **1751**

Preparations of relaxin from the ovaries of pregnant sows and from the blood of pregnant rabbits inhibit the development of a decidual reaction in the uterus of the castrate-pseudopregnant rat following traumatization and treatment with progesterone. Partially purified relaxin samples also contained a heat-labile factor which synergized with progesterone in the production of deciduomata. On the basis of experiments with relaxin preparations covering a wide range of specific activities, and the effects of a variety of chemical reagents, it was concluded that the inhibitory property of such preparations was a specific response to relaxin.

EAST, J. (1952). **Oestrogenic effects of subterranean clover; studies on the female guinea pig.**—*Aust. J. sci. Res.* Ser. B. **5,** 472-484. **1752**

Female g. pigs were rendered infertile by oestradiol dipropionate injections (0·5, 2·0, 8·0 and 32·0 μg. three times per week) or subterranean clover ingestion (30 g. per day) over a period of 9 months. A further 9 months was allowed for recovery.

Clover consumption caused immediate infertility, but recovery was rapid after return to a normal diet. Ovulation and oestrous cycles were unaffected by clover consumption.

Oestradiol injections caused abnormal oestrous cycles, and interfered with follicular growth and ovulation. Recovery occurred on all except the highest dose rate.

It is suggested that the effect of oestradiol on the ovary was mediated by the pituitary, but the clover oestrogen apparently produced its effect by a direct action on the reproductive tract.—A. W. BRADEN.

SIEVE, B. F. (1952). **A new antifertility factor. (A preliminary report.)**—*Science.* **116,** 373-385. **1753**

S. confirmed findings reported by Martin, G. J. in a personal communication, that treatment of mice for 7 days with phosphorylated hesperidin considerably reduced fertility. On cessation of treatment fertility returned to

normal. S. considered that the drug acts by inhibition of hyaluronidase.

In large-scale trials of oral medication in human beings over periods up to 30 months the anti-fertility action of the drug was found to be complete; it could be taken indefinitely without toxic effects or permanent inhibition of fertility.—L. M. JONES.

GASSNER, F. X. & HOPWOOD, M. L. (1952). **Seminal amino acid and carbohydrate pattern of bulls with normal and abnormal testes function.**—*Proc. Soc. exp. Biol., N.Y.* **81,** 37-43. [Authors' summary modified.] **1754**

Some methods for the characterization and estimation by paper partition chromatography of carbohydrates and free amino acids in the semen and accessory sex organ fluids of the bull were described. Fructose was the only sugar found in semen and in fluids expressed from the accessory sex glands. Glutamic acid, alanine, glycine, serine, and aspartic acid were found in free form in the semen: they were apparently not utilized by spermatozoa during the process of fructolysis. Seminal fructose and amino acids were completely lost after castration. Vasectomy, contrary to expectations, resulted in a total depletion of seminal amino acids even though the testes remained *in situ*: that the testes continued to function normally with respect to androgen secretion was borne out by the fact that masculine behaviour and the level of seminal fructose were not affected by vasectomy. Treatment with testosterone propionate, however, restored seminal amino acids to significantly higher levels. Seminal fructose remained unchanged.

RODE, C. P. (1952). Morphologische Untersuchungen zur Pathogenese der Samenstaung bei Ziegenböcken. **[Congestion of semen in male goats.]**—*Inaug. Diss., Munich.* pp. 37. **1755**

An investigation of seminal stoppages in 12 male goats slaughtered because of infertility. Degeneration of the epithelia of testis and epididymis was noted in every case, but R. did not consider this to be the cause of stoppage: he thought it possible that the pressure of the seminal cysts against the blood vessels of the interstitial tissue surrounding the ductuli aberrantes reduced the flow of blood and in consequence reduced the motility of the spermatozoa, which is dependent upon the oxygen tension of the blood. He suggested that a lack of vitamin A might be a predisposing factor.—A.S.

BARTON, M. & WIESNER, B. P. (1952). **Significance of testicular exfoliation in male infecundity.**—*Brit. med. J.* Nov. 1st, 958-962. [Authors' summary modified.] **1756**

Persistent exfoliation of testicular cells, including abnormal cell forms, is often associated with infertility, although it is compatible with the occurrence of fertilization. It does not respond to specific endocrine measures, but responds in a significant proportion of cases to the treatment of associated systemic conditions such as metabolic disturbances or infective states. Reduction of exfoliation is often accompanied by an increase in fertility.

Some exfoliated cells reflect disturbances of cell division, and it is concluded that endogenous as well as exogenous factors may act as antimitotic agents and possibly produce genetic changes.

The authors suggested that in [human] subjects in whom antimitotic effects are much in evidence attempts at reproduction might wisely be postponed in view of the possible danger of hereditary subfertility.

VANDEPLASSCHE, M. (1952). Stérilité infectieuse chez les bêtes bovines. **[Infectious forms of sterility in cattle.]**—*Conf. de la journée d'étude sur la Reproduction et Troubles de la Reproduction chez les Bovins.* 24th Feb., 1952. pp. 103-115. **1757**

A survey of venereal infections due to protozoa, viruses and bacteria with a note on the role of A.I.—IAN NEWSAM.

I. LAGERLÖF, N. & SETTERGREN, I. (1953). **Results of seventeen years' control of hereditary ovarian hypoplasia in cattle of the Swedish Highland breed.**—*Cornell Vet.* **43,** 52-64. [Abst. from authors' summary.] **1758**

II. LAGERLÖF, N. & BOYD, H. (1953). **Ovarian hypoplasia and other abnormal conditions in the sexual organs of cattle of the Swedish Highland breed: results of post-mortem examination of over 6,000 cows.**—*Ibid.* 64-79. [Abst. from authors' summary.] **1759**

I. The authors described clin. examinations in connexion with the campaign against hereditary ovarian hypoplasia in the Swedish Highland breed during 1935-52 and gave an account of the incidence of hypoplasia in different year groups. The subjects were 8,145 cows, most of which were examined several times. It was possible, after sufficient experience had been gained, to diagnose total hypoplasia, partial hypoplasia, and doubtful forms by rectal examination. The incidence of hypoplasia in all the animals examined was: in cattle born up to 1936 = 2,194 cases (17·5%); in cattle born 1937-39 = 1,173 cases (15·2%); in cattle born 1940-42 = 1,438 cases (11·3%); in cattle born

1943-45 = 1,588 cases (11·1%); in cattle born 1946-48 = 1,752 cases (9·4%).

An account was also given of the ovarian activity of the cows examined. As the incidence of hypoplasia fell, an increased activity of the left ovary, in the form of an increase in the number of corpora lutea sinistra, was observed. An increase in the incidence of left-sided pregnancies was also seen. The results obtained were verified by statistical analysis.

II. P.M. examination of the sex organs of 6.286 cows of the Swedish Highland breed revealed a statistically significant variation between the incidence of hypoplasia in the different counties. The difference in incidence in the counties may be associated with the fact that the first known cases of gonad hypoplasia were in bulls in a breeding centre in Jämtland; this would explain the higher incidence in that county. Total hypoplasia of the left ovary was predominant, partial left-sided hypoplasia being second in frequency.

The incidence of cystic ovarian degeneration varied only slightly in the different counties; it was much more common in the right ovary (6·0%) than in the left ovary (3·2%).

Various degrees of double cervix were seen in 118 cases (2·0%), the incidence being very much higher in Jämtland than in the rest of the material.

The authors discussed the relative activity of the two ovaries as indicated by pregnancy or the presence of a corpus luteum. Of the 275 pregnant cows represented in the whole material, 62·9% were pregnant on the right side. Of the 4,545 organs in which ovarian development was normal, 57·2% had the corpus luteum on the right side.

DALE, D. G. & MOXLEY, J. E. (1952). **Prenatal tendon contracture in a herd of milking Shorthorns.**—*Canad. J. comp. Med.* **16**, 399-404. **1760**

Full-term calves had lower birth weights, the skeletal muscle was not normally developed, several had contracture of the cervical muscles. There was no allantoic dropsy or lack of uterine tone. The condition was believed to be an inherited defect accentuated by inbreeding.

—R. GWATKIN.

DONALD, H. P., DEAS, D. W. & WILSON, A. L. (1952). **Genetical analysis of the incidence of dropsical calves in herds of Ayrshire cattle.**—*Brit. Vet. J.* **108**, 227-245. [Authors' summary slightly modified.] **1761**

Data from 325 dropsical calves in 60 Ayrshire herds were analysed, and the conclusion drawn that the abnormality is due to a single autosomal recessive gene (symbol *dr.*). Affected calves may show degrees of dropsy from slight to severe. Slight cases may pass unrecognized, while severe cases often entail loss of the dams. In this material, 20–30% of dams died or had dystocia. Affected calves were more often born dead than alive. Live calves can sometimes be reared, but the dropsical condition persists. Affected calves showed an excess of males. It is thought possible that heifer calves may sometimes pass as normal.

The incidence of affected calves in breeding herds is consistent with Mendelian expectations on the basis of an autosomal recessive gene. Support for this view is provided by field data showing association of the defect with in-breeding in some herds and limitation of affected calves to particular sire progencies. Analysis of pedigrees of 131 bulls siring dropsical calves showed that a few herds and a few bulls occurred in these pedigrees with a disproportionate frequency.

The *dr* gene has been present in the breed for a long time, but the hierarchical nature of breed structure has recently caused it to become more widespread in pedigree herds and will probably cause in the future an increase in the frequency of the gene in non-pedigree Ayrshire cattle. A subsequent decline in frequency may be expected, but the rate of decline will depend on the efficacy of efforts to eliminate the gene from the pedigree population.

BURSTONE, M. S., BOND, E. & LITT, R. (1952). **Familial gingival hypertrophy in the dog (boxer breed).** — *Arch. Path.* **54**, 208-212. **1762**

A study of gingival biopsies of four closely-related dogs exhibiting gingival hyperplasia. Microscopically the lesions were characterised by a central area of bone and by nests and cords of cells suggestive of odontogenic epithelium.—L. M. MARKSON.

SCHWARTZ, M. (1952). **Heredity in bronchial asthma. A clinical and genetic study of 191 asthma probands and 50 probands with baker's asthma.**—*Acta allerg., Kbh.* Suppl. II. pp. 288. [In English. Danish summary.] **1763**

In two brief chapters of this detailed monograph on the hereditary aspect of bronchial asthma in man, S. discussed the literature on heredity and allergic reactions in animals and experimental research on the permeability of the animal placenta to antibody and antigen.

—E.G.

MCFARLANE, D., SALISBURY, R. M., JEBSON, J. L., MCCLURE, T. J., HARTLEY, W. J. &

OSBORNE, H. G. (1952). **Ram epididymitis, ewe abortion and lamb neonatal mortality.**—*Aust. vet. J.* **28**, 226. **1764**

A short preliminary note drawing attention to an association between epididymitis in rams, abortion in ewes and neonatal mortality in lambs. A pleomorphic Gram-negative coccobacillus which grows on blood agar in 10% CO_2 has been recovered from many cases of epididymitis and inflammatory states of other portions of the genital organs in rams. The organism is often present in the semen and reproduces genital disease in the ram after intravenous or preputial administration. The organism regularly produces disease of the foetal membrane in the ewe. A similar organism is associated with one of the types of abortion in ewes widespread in New Zealand. The gross changes and the epidemiology of the disease in ewes resemble the description of enzootic abortion in Scotland.—D. F. STEWART.

KOSIN, I. L. (1951). **A study of the morphology of moribund turkey blastoderms.**—*Off. Rep. 9th World's Poult. Congr., Paris.* **3**, 75-87. **1765**

K. reported the gross and microscopic appearance of moribund turkey blastoderms. Variations in normal blastoderms are seen and these may be influenced by clutch size and time of oviposition. The commoner types of abnormalities seen were illustrated in sketches and photomicrographs.—D. LUKE.

BARNHART, C. E. & PENDERGRASS, G. D. (1952). **Comparison of farrowing crate and conventional farrowing pen with guard rails for brood sows.**—*Bull. Ky agric. Exp. Sta.* No. 583. pp. 8. [Abst. from authors' summary.] **1766**

Only 3·2% of the pigs farrowed by sows in crates were crushed as compared to 8·1% in conventional pens. Sows confined to crates required less attention during and after farrowing and seemed to be less nervous than those farrowing in pens; they suffered no discomfort or injuries from being restricted to the crate.

See also absts. **1437** (inheritability of mastitis); **1460** (*H. citreus* in the bovine genital system); **1551** (seasonal incidence and foetal age in equine virus abortion); **1558-1560** (enzootic abortion in ewes); **1626** (nutritional infertility in cattle); **1630** (oestrogens in colostrum); **1787** (book, farm animals).

ZOOTECHNY

CORRIAS, A. (1952). La soppressione dell'estro nella *Sus scrofa domestica* mediante l'impiego delle sostanze estrogene esterificate. [**Suppression of oestrus in pigs by means of synthetic oestrogens.**]—*Progr. Vet., Torino.* **7**, 757-758, 760, 762-764, 766, 768, 770, 772-774 & 776. **1767**

Experiments with 24 fattening sows suggest that a single dose of 37–45 mg. of diethylstilbene dipropionate is sufficient to suppress heat for 75–100 days and thereby hastens the fattening process.—J. A. NICHOLSON.

FISCHEL, W. (1949). Leben und Erlebnis bei Tieren und Menschen. [**Psychology in animals and man.**] pp. 138. Munchen: Johann Ambrosius Barth. DM. 12.40 or DM. 14.40. **1768**

This short work is of a highly philosophical character, and attempts through a rapid survey of the animal kingdom to indicate the scope of what is termed "Tierseelenkunde" and to emphasize the author's interpretation of evolutionary changes. Man is depicted as having in life a position similar to that of a player in a ball game, and various philosophical opinions are quoted in extension of this simile.

The many examples drawn from the literature of animal behaviour are interesting, but the unorthodox approach is less convincing than that of established ethologists such as N. TINERGEN, whose original research has helped to establish the psychological affinities between man and lower animals and has laid a surer foundation for the interpretation of human and animal behaviour.—ALASTAIR N. WORDEN.

See also absts. **1787** (book, farm animals); **1788** (book, cattle breeds and leather).

TECHNIQUE AND APPARATUS

PARTMANN, W. & MONTFORT, L. (1952). Ein neuer Impfkasten. [**An inoculation cabinet.**]—*Zbl. Bakt. I. (Orig.)* **157**, 611-619. **1769**

A metal case for use when inoculating culture media, designed to prevent contamination by micro-organisms from the air. The air in the case can be disinfected. The most effective method is by irradiation with a U.V. lamp inside the case, before the inoculating procedures are begun.—A. MAYR-HARTING.

WEBLEY, D. M. (1953). **A simple method for producing microcultures in hanging drops with special reference to organisms utilizing**

oils.—*J. gen. Microbiol.* **8**, 66-71. [Author's summary modified.] **1770**

An aseptic technique was described for obtaining small hanging drops on the surface of coverslips, using only apparatus that is cheap and easy to obtain. The technique was used to demonstrate the growth of *Nocardia salmonicolor* on liquid paraffin droplets.

LOSNER, S. (1952). **The ballistoscope: an instrument for the study of the cardiac impulse.**—*Proc. Soc. exp. Biol., N.Y.* **81**, 1-3. [Abst. from author's summary.] **1771**

An instrument spoken of as a ballistoscope was described, which records any motion of the surface on which it is placed. Placed upon the sternum in human beings it reveals ballistic patterns which are constant and characteristic in normal individuals as well as in patients with various types of heart disease.

See also absts. **1442** (haemagglutination in TB.); **1464** (isolation of *Salmonella* from chickens); **1523** (purification of F. & M. disease antigen); **1539** (mutation of cow pox virus by egg-passage); **1541** (a modified H.I. test for exclusion of non-specific inhibitors); **1732** (preservation of bull semen); **1734-1735** (milk as a semen diluent); **1736** (evaluation of semen).

MISCELLANEOUS

LARSEN, L. H. (1952). **Bone surgery.**—*Aust. vet. J.* **28**, 129-139. **1772**

L. reviewed and discussed various methods applicable to the treatment of fractures and dislocations in small animals.—J. M. KEEP.

REPORTS

GREAT BRITAIN. (1951). **Annual Report of the West of Scotland Agricultural College, Glasgow, 1950.** pp. 61. Stirling: Jamieson & Munro Ltd. [Items of veterinary interest pp. 39-48.] **1773**

Supplements of vitamin D_2 to cows did not increase the yield or butterfat content of milk. Dried separated milk is less satisfactory for the rearing of young calves than liquid separated milk. The administration of Vitamin D does not prevent "broken mouth" in older ewes but it is being tried in lambs before their permanent teeth have erupted. It would appear that lanolin is the active principle in the dibutylphthalate paste treatment for the control of ticks on lambs. Treatment differences are now apparent in the manurial experiments on hill grazings. Lambs showed an increase in live weight over controls when solutions of cobalt or copper were administered at 3-weekly intervals. All lambs born two hours after 250 mg. copper were administered to the mother ewe were free from SWAYBACK. SUMMER MASTITIS and BLOAT were commoner than in former years. PARASITIC GASTRITIS was investigated more often. Interesting investigations include ARSENIC POISONING in cattle, ZINC POISONING in young pigs, STERILITY in cows, CALCIUM DEFICIENCY in ewes and BRACKEN POISONING of cattle. At Lephinmore investigations included a survey on *Lymnaea truncatula,* an egg counting experiment (helminth parasite) in lambs, a hogg dosing experiment and the beginning of a study on 'The effects on sheep of the partial afforestation of their grazings' with respect to lambs and wool. Analyses are being made of the rumen content of the sheep slaughtered for a helminthological survey.

—CHARLOTTE M. WOOD.

GREAT BRITAIN. (1952). **London School of Hygiene and Tropical Medicine (University of London) incorporating the Ross Institute. Report on the work of the School for the year 1950-1951.** pp. 112. London: The School. **1774**

The report describes the wide activities of the School, but the section on Parasitology holds the greatest interest to the veterinarian.

Dr. J. Newsome is working on SCHISTOSOMIASIS under the Medical Research Council at the School's field station, Winches Farm, and Dr. S. Wilmott still retains an active interest in the paramphistomes of British cattle.

Blood slides of all animals which die at the Zoological Gardens are received and examined weekly. Helminthological material is also regularly examined.

It is regretted that money is not forthcoming for completing the developments at Winches Farm and only the first stage of the three planned, namely, the animal breeding station, has been completed.—D. S. RABAGLIATI.

GREAT BRITAIN. (1952). **Report of the Medical Research Council for the year 1950-51.** pp. 214. London: H.M. Stat. Off. 6s. **1775**

It was considered possible that outbreaks of GASTRO-ENTERITIS in infants might be due to the same type of *Clostridium welchii* which causes LAMB DYSENTERY and which is a normal inhabitant of human and animal intestines.

Exhaustive examination of stools of infected infants failed, however, to reveal the presence of this type of *Clostridium* in sufficient numbers to prove this.

Research is reported on protein, the preservation of living cells at low temperature, recent work on antibiotics, especial mention being made of chloramphenicol (chloromycetin), aureomycin and terramycin, which have greatly extended the range of diseases amenable to chemotherapy; also on SKIN DISEASE, climatological medicine and MALARIA.

—D. S. RABAGLIATI.

CANADA. (1952). **Province of British Columbia. Forty-sixth annual report of the Department of Agriculture for the year 1951.** [BOWMAN, H. R.] pp. 193. Victoria, B.C.: D. McDiarmid. [Contains report of the Chief Veterinary Inspector (GUNN, W. R.) pp. 74-121.] **1776**

HAEMORRHAGIC SEPTICAEMIA ("shipping fever") is a permanent problem. BLACKLEG is widely distributed. A few flocks of sheep are still under quarantine for CASEOUS LYMPHADENITIS but incidence is low. SWINE ERYSIPELAS appears in both the "diamond skin" and the arthritic forms. There were few cases of *V. fetus* infection in cattle. ACTINOMYCOSIS and ACTINOBACILLOSIS appear singly or as mixed infections. The former has been gradually reappearing. BRUCELLOSIS control by means of extensive use of Strain 19 vaccine is proving to be a popular measure.

COCCIDIOSIS in cattle is gradually being reduced. The incidence of EQUINE ENCEPHALOMYELITIS has increased and RHINITIS of swine is far from being eradicated.

Efforts are in progress to reduce the incidence of warble flies and ticks.

CARCINOMA OF THE EYE in cattle seems to be increasing and the possibility of a genetical weakness is being considered.

Laboratories for the diagnosis of disease are maintained in Victoria and Vancouver. Artificial insemination of cattle is becoming more popular.—G. B. S. HEATH.

AUSTRALIA. (1951). **Northern Territory. Fifth annual report, 1950-1951 (covering activities of year ending 30/6/51). Animal Industry Division, Northern Territory Administration.** [ROSE, A. L.] pp. 27. Alice Springs. [Mimeographed.] **1777**

Outbreaks of BOVINE CONTAGIOUS PLEUROPNEUMONIA are described. The enormous amount of work required for inoculations and inspections to detect a comparatively small number of diseased animals and achieve control is emphasized. In the north of the Northern Territory it is difficult to control the disease while cattle are run under range conditions. Attention has been concentrated on vaccination of mobs before they set out on stock routes for southern markets. Losses from BOTULISM in cattle continued.

Boophilus microplus has spread south some 120 miles and about 350 miles along the stock route to Urandangie in western Queensland. Survey and control measures are described. With the extension of ticks into previously "clean" areas outbreaks of "tick fevers" have increased.

OSTEOMALACIA and BONE CHEWING occur in cattle watered from certain bores and it appears that the water is responsible for the disturbance of mineral balance. The "PEG-LEG" SYNDROME was seen in several herds. "ALEXANDRIA DISEASE" of cattle is widespread in the Barkly Tablelands. It appears when the plane of nutrition declines, affects all ages and both sexes, but is commonest in cows. Affected animals are recumbent and move with reluctance and with an uncertain gait. There is a discharge from eyes and nostrils and constant licking of the nostrils. A single feeding trial suggested that ingestion of "whitewood" (*Atalaya* spp.) may be the cause. There are resemblances with "WALLUM DISEASE" of cattle in coastal regions of Queensland.

BIRDSVILLE DISEASE of horses (due to ingestion of *Indigofera enneaphylla*) was further studied and a colour film was made for extension work. Study of the possibility that the toxic principle may cause thiamine block, made by recorded pyruvic acid levels in the blood, gave negative results.

There are notes on developmental work, statistical matters, destruction of dingoes, bush fires and road transport of cattle.

—H. McL. GORDON.

S. AFRICA. (1949). **African Regional Scientific Conference, Johannesburg, October 17 to October 28, 1949. Vol. I. Proceedings and resolutions. Vol. II. Statements and communications.** Vol. I. pp. 127. Vol. II. pp. 469 +iv. Pretoria: Govt. Printer. **1778**

The conference was held under the presidency of Dr. P. J. du Toit, Deputy President of the South African Council for Scientific and Industrial Research. Vice Presidents were Dr. P. Staner, Professor of the University of Louvain and Director of Belgian Colonial Administration, Professor J. Millot, Director of the Institute for scientific reseach, Madagascar, Dr. A. A. E. Mendes-Correa, Director of the Higher Colonial School, Lisbon and President of Colonial Research Council, Sir Ben Lock-

speiser, Secretary of the Department of Scientific and Industrial Research, London and Dr. B. F. J. Schonland, President of the Council for Scientific and Industrial Research, Pretoria.

There were delegations from Belgium, France, Portugal, the U.K., Basutoland, Swaziland, Southern Rhodesia, Northern Rhodesia, Nyasaland, East Africa, West Africa, South Africa and South-West Africa. Also present were observers representing the United States National Research Council, U.N.E.S.C.O., F.A.O. and W.H.O.

The report is published in two volumes, volume I Proceedings and Resolutions and volume II Statements and communications. The papers are arranged in sections—section A: survey, maps, geology, geophysics, meteorology and hydrology; section B: soils and soil conservation, botany and plant industry and forestry; and section C: zoology and animal industry. In this section papers of veterinary interest are:—E. B. Worthington, The scientific problems of game control and preservation; F. N. Bonsma & J. H. R. Bisschop, Animal bionomy and genetics in relation to the animal industry, with special reference to the continent of Africa; J. I. Quin, J. W. Groenwald, J. G. Louw & H. P. D. van Wyk, Problems of animal physiology and nutrition in relation to animal industry in the Union; E. M. Robinson, M. Sterne & M. W. Henning, Animal industry in relation to bacterial diseases of stock; R. A. Alexander, Diseases of stock caused by viruses; W. O. Neitz, African stock diseases caused by protozoa; R. du Toit, H. Graf & G. Theiler, Parasitological investigations in relation to animal industry in the Union; R. J. Ortlepp, Helminthology in relation to animal industry in the Union of South Africa; D. G. Steyn, T. Adelaar & M. Henrici, Poisonous plants in relation to animal industry in the Union of South Africa; A. M. M. Gericke & D. Coles, The poultry industry in South Africa; H. M. O. Lester, The need for further study on problems of pasture management before planning extensive African-owned cattle industry in new areas in East Africa; N. G. Camara, Veterinary investigations in relation to animal industry in the African continent south of the Sahara (in French); and D. G. Steyn, Poisonous freshwater algae.—E.G.

BELGIAN CONGO. (1950). Voyage d'études vétérinaires au Congo Belge (juin-octobre 1949). **[The veterinary problems of the Belgian Congo.]** [SCHOENAERS, F.]—*Bull. agric. Congo belge.* **41,** 1007-1036. [Flemish summary.] **1779**

An account of four months' study in the Belgian Congo. Conditions on European and African settlements are satisfactory except among the African holdings of Ruanda-Urundi where undernourishment is the main problem. Observations on pathological conditions specifically studied included: serological and chemotherapeutic studies on TRYPANOSOMIASIS (antrycide); susceptibility of the Syrian hyrax, *Dendrohyrax arborea* to *T. vivax;* photosensitization following dimidium bromide; EAST COAST FEVER; BRUCELLOSIS in cattle; SARCOSPORIDIOSIS in cattle; COW POX; RABIES; parasitic diseases. Progress in disease eradication is being hampered by the lack of veterinary personnel and laboratory facilities.

—G. V. LAUGIER.

BOOK REVIEWS

NEVEU-LEMAIRE, M. (1952). Précis de parasitologie vétérinaire. Maladies parasitaires des animaux domestiques. **[Veterinary parasitology.]** pp. xvi + 491. Paris: Vigot Frères. 3rd Edit. Fr. 3300. **1780**

This third edition is a little disappointing particularly in respect of treatment of diseases caused by the Protozoa. For example thymol is recommended for treatment of coccidiosis in chickens and the sulphonamides are not mentioned. Trypanblue is advised for *Babesia bovis* infections and acaprin is not mentioned. For trypanosomiasis there is no mention of such important chemotherapeutic agents as the phenanthridinium compounds and antrycide

A very useful feature of the book is a detailed host list of parasites; under each host the parasites are listed according to the organ or tissue which they parasitize. This extensive list occupies 64 pages.—M.C.

MANSON-BAHR, P. H. (1952). **Synopsis of tropical medicine.** pp. xiii + 248. London: Cassell & Co. Ltd. 2nd Edit. 15s. **1781**

The first edition of this work was produced in 1943 to serve the needs of medical officers of the Forces and others temporarily stationed in the Tropics. That it met a need was evidenced by the call for two reprintings.

This new edition incorporates the many new developments which have occurred in Tropical Medicine. It is a masterpiece of compression and gives the essentials of an extremely wide range of subjects in a readily accessible

form. A similar compilation on veterinary Tropical medicine would be very useful.—M.C.

WARDLE, R. A. [University of Manitoba, Winnipeg, Canada.] & MCLEOD, J. A. (1952). **The zoology of tapeworms.** pp. xxiv + 780. Minnesota: University Press; London: Geoffrey Cumberlege. 80s. **1782**

This volume is a very complete work on the tapeworms. Part one deals with the biology of tapeworms in general and discusses their life cycles, nutrition, origin, evolution, classification and several other general features. Part two consists of detailed, systematic descriptions of the known genera of tapeworms and includes keys for their identification. At the end of the book there is a comprehensive reference list.

This is a book for the specialist, who will find it a most useful reference work. The veterinarian in general practice will find less use for this volume, although he could with profit refer to it for information which he may require on the zoology of tapeworms.

—T. E. GIBSON.

HARRIS, P. L. & KUJAWSKI, W. [Compiled by.] (1952). **Annotated bibliography of vitamin E, 1950 and1951. Vol. II.** pp. 106. New York: The National Vitamin Foundation, Inc. $2. **1783**

This is a continuation of the survey of the literature presented in volume I [see *V.B.* **22**, 634], but covering the period 1950-51. In addition there are some abstracts of papers mentioned only by title in the previous volume and new entries from the 1940-50 period. The layout is the same as before; of some 643 abstracts 51 refer specifically to veterinary use. There is an author index.—E. MARSH JONES.

BLAND, J. H. [Assistant Professor of Medicine, University of Vermont College of Medicine.] (1952). **The clinical use of fluid and electrolyte.** pp. ix + 259. Philadelphia: London: W. B. Saunders Company. 32s. 6d. **1784**

This book comprising 13 chapters is a study of the chemical "anatomy" of body fluid and its behaviour with electrolytes in health and disease, written with a view to the correlation of established facts with clinical problems arising daily and to serve as a practical guide to the recognition and treatment of the various fluid and electrolyte abnormalities that may arise in medical and surgical patients. The author devotes a chapter based partly on his own experiences to this problem as applied to geriatric patients in whom such therapy, carefully planned, may make the difference between survival and death.

Many aspects of the relationships of body water and various disease conditions are covered and there is a list of references at the end of each chapter. The book is a source of useful information, but the subject matter is concerned with human beings and not with veterinary applications.

The book is produced by a photographic process and is bound in a soft cloth cover.

—E. MARSH JONES.

ANON. (1952). **The extra pharmacopoeia. (Martindale). Vol. I. Incorporating Squire's Companion.** pp. xxii + 1352. London: The Pharmaceutical Press. 23rd Edit. 55s. **1785**

The Council of the Pharmaceutical Society presents this valuable new edition in a completely rewritten and revised form, brought up to date in respect of the very wide field of therapeutics and pharmacy which it covers. Although this is no longer a "pocket book" the original format is retained; it has however a larger type area and more pages than any previous edition. The new national pharmacopoeias which have been published since the last edition have been examined and the references revised. Comparisons are made between the British Pharmacopoeia, the United States Pharmacopeia and the International Pharmacopoeia evaluating the properties of drugs and their efficacy. Of therapeutic agents some 156 representative of the new inclusions, are listed in the preface. Nearly three-quarters of the 4,000 abstracts in the book are new and have been taken from the literature over the last ten years. The special sections covering Antibiotics; Antisera, toxoids, tuberculins and vaccines; Blood transfusion; Surgical ligatures and sutures; Poisons Legislation; Dangerous Drugs Legislation; Methylated Spirits Regulations; Penicillin Act; and Therapeutic and pharmacological index are grouped together at the end of the book. There is an index of some 12,000 entries relating to material in Volume I only.

—E. MARSH JONES.

LUCK, J. M., LORING, H. S. & MACKINNEY, G. [Edited by.] (1952). **Annual review of biochemistry. Vol. 21.** pp. ix + 781. Stanford, California; Annual Reviews, Inc.; London: H. K. Lewis & Co. Ltd. $6.00. **1786**

This volume contains 23 reviews comprising:—Proteolytic Enzymes, by A. K. Balls and E. F. Jansen; Nonoxidative, non-proteolytic enzymes, by K. I. Altman and A. L. Dounce; Chemistry of the carbohydrates, by R. Montgomery and F. Smith; Chemistry of lipids, by H. J. Deuel, Jr., and R. Alfin-Slater; The

chemistry and metabolism of the steroids, by L. T. Samuels and H. Reich; The chemistry of amino acids and proteins, by H. B. Bull; Nucleic acids, purines, and pyrimidines, by D. O. Jordan; Fat metabolism, by A. C. Frazer; Interrelationships of lipid and carbohydrate metabolism, by K. Bloch; Metabolism of amino acids and proteins, by H. Tarver; Fat-soluble vitamins, by A. R. Kemmerer; Nutrition, by E. J. Bigwood; Chemistry of muscle, by M. Dubrisson; The biochemistry of neoplastic tsisue, by P. C. Zamecnik; The biochemistry of antibiotics, by T. S. Work; Comparative biochemistry, by M. Florkin; Carotenoids, by G. Mackinney; The alkaloids, by L. J. Sargent and L. F. Small; Chromatography, by S. Moore and W. H. Stein; Carbohydrate metabolism, by S. Ochoa and J. R. Stern; Chemistry of the non-steroid hormones, by C. H. Li and J. I. Harris; Water-soluble vitamins concerned with one- and two-carbon intermediates, by A. D. Welch and C. A. Nichol, and Biological oxidations, by B. Chance and L. Smith.

Some of the reviews are long, running to about 50 pages, in order to keep pace with the rapid growth of certain fields of biochemical research. The high standard of the publication is maintained. There are good author and subject indexes.—E. Marsh Jones.

Hammond, J. [Reader in Agricultural Physiology, University of Cambridge.] (1952). **Farm animals: their breeding, growth, and inheritance.** pp. viii + 266. London: Edward Arnold & Co. 2nd Edit. 18s. 1787

The first edition of this book appeared in 1940 and has been reprinted on four occasions in the intervening years. This second edition is on the same lines as the first but includes reference to much research which has been done in the interval. It is divided into two parts, "Fertility and growth in farm animals" and "Genetics in relation to the practical problems of breeding farm animals".

In the first part six chapters deal with general principles and with each of the more important species of farm animals, namely horses, cattle, sheep, pigs and poultry. The second part consists of five chapters namely General considerations, Mendelian applications, Evolution and selection, Inbreeding and crossbreeding, and Special problems in breeding for production. There are also author and subject indexes and each chapter has a list of selected references. The book is well illustrated and forms a most useful textbook for the veterinary student studying animal husbandry. The illustration on p. 207 seems to the reviewer to have been unhappily chosen. It is intended to illustrate the difference in size between cattle reared in dry and humid areas. The breeds selected for illustration are the Nagore and the Sindhi. In the first place no scale of magnification is given and as a result the photographs greatly exaggerate the difference in size between the two breeds; secondly the Sindhi breed is produced in an arid area and not a humid one as stated in the caption. Both these breeds are native to dry areas and although the Nagore, a draught breed, is considerably longer in the leg than the Sindhi, a dairy breed, the body weights of the two breeds are not greatly different. For example the 1st prize winning Nagore cow at the All India Cattle show in 1938 weighed 868 lb. and the 1st prize Sindhi cow 766 lb., the weights for the corresponding bulls being 1,379 lb. and 1,168 lb.—M.C.

Hausam, W. (1952). Die Bedeutung der Rinderrassen für die Lederherstellung. [**Breeds of cattle in relation to leather production.**] pp. 148. Stuttgart: Wissenschaftliche Verlagsgesellschaft M.B.H. DM 26.50. 1788

Hide quality is of supreme importance to the tanner. The author presents the results of an investigation into the hides from approximately 600 cows, all of breeds registered in the German herd book. The investigation included: —ratio of hide weight to live weight; relation of hide to meat quality, milk production, and life history; relation of breed to hide quality, size and thickness. Skins of different breeds were analysed for content of water, fat, ash, and protein. From the tanning viewpoint, the hides were converted to leather and the physical and chemical properties of the finished products related to the breed of animal supplying them. The importance of mountain cattle for heavy sole leather is clearly seen. Particulars of methods of physical testing of leather are given.

Although the book is a small one, it represents a considerable amount of careful research. Eleven half-tone plates of German cattle, 16 graphs, and 52 tables are included.—S. E. Fox.

Møller-Sørensen, A. (1952). Laerebog i den almindelige veterinaerkirurgi. [**A textbook of general veterinary surgery.**] pp. 465. Copenhagen: A/S Carl Fr. Mortensen. Kr. 90. 1789

As this book is the first on its subject in the Danish language to appear since 1870 the author, who is the present professor of surgery at the Copenhagen veterinary school, feels that it may relieve a long-standing need. It is based upon the lecture course and is conventional in material and layout. The didactic text is sup-

ported by nearly 200 photographs and by a few figures in colour, on subjects drawn preponderantly from horse and cattle practice. The text is up to date and the illustrations nearly all new.

The paper, binding and printing are all of first class quality and the teaching concise without being at all perfunctory. Danish veterinary students should feel very well served by this textbook.—J. EDWARDS.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

BACH, S. J. (1952). **The metabolism of protein constituents in the mammalian body.** pp. viii + 272. Oxford: The Clarendon Press. London: The Oxford University Press. 40s.

BALSTON, J. N. & TALBOT, B. E. (Compiled by.) (1952). **A guide to filter paper and cellulose powder chromatography.** pp. 145. London: H. Reeve Angel & Co. Ltd. Maidstone: W. & R. Balston Ltd. 8s.

BOURNE, G. H. & DANIELLI, J. F. (Edited by.) (1952). **International review of cytology. Vol. I.** pp. 368. New York: Academic Press Inc. $7.80.

BURROWS, H. & HORNING, E. (1952). **Oestrogens and neoplasia.** pp. xv + 189. Oxford: Blackwell Scientific Publications. Springfield, Ill.: Charles C. Thomas. Toronto: The Ryerson Press. 30s.

COFFIN, D. L. (1953). **Manual of veterinary clinical pathology.** pp. xiv + 422. London: Baillière, Tindall & Cox. 3rd Edit. 42s.

GOODWIN, T. W. (1952). **The comparative biochemistry of the carotenoids.** pp. x + 356. London: Chapman & Hall Ltd. 50s.

GRAY, C. H. (1953). **The bile pigments.** pp. xv + 142. London: Methuen & Co. Ltd. New York: John Wiley & Sons, Inc. 9s. 6d.

GROSSMAN, J. D. (Revised by.) (1953). **Sisson's anatomy of the domestic animals.** pp. 972. Philadelphia & London: W. B. Saunders Company. 4th Revised Edit. 75s.

HONEKER, A. (1952). Die Krankheiten der Ziege. III. Die Eutererkrankungen der Ziege. **[Diseases of goats. III. Diseases of the udder.]** pp. 120. Dortmund: Verlag für Kleintierzucht. DM. 5.

KIRK, H. (1953). **Index of diagnosis (clinical and radiological) for the canine and feline surgeon.** pp. viii + 667. London: Baillière, Tindall & Cox. 4th Edit. 45s.

MAINLAND, D. (1952). **Elementary medical statistics. The principles of quantitative medicine.** pp. ix + 327. London & Philadelphia: W. B. Saunders Company, Ltd. 25s.

MCCUNN, J. (Edited by.) (1953). **Hobday's surgical diseases of the dog and cat.** pp. vii + 453. London: Baillière, Tindall & Cox. 6th Edit. 30s.

MEETHAM, A. R. (1952). **Atmospheric pollution:** its origins and prevention. pp. 268. London: Pergamon Press Ltd. 35s.

MORRISON, S. D. (1952). **Human milk. Yield, proximate principles and inorganic constituents.** pp. viii + 91. Farnham Royal: Commonwealth Agricultural Bureaux. 10s. 6d. $1.50.

MOZLEY, A. (1952). **Mulluscicides.** pp. viii + 87. London: H. K. Lewis & Co. Ltd. 9s.

RICHTER, K. (1952). Praktische Viehfütterung. Neuzeitliche Gestaltung der Fütterung von Rindvieh, Schafen, Pferden und Schweinen. **[Feeding of cattle, sheep, horses and pigs.]**—pp. 80. Stuttgart z.Z. Ludwigsburg: Eugen Ulmer. DM. 2.

SALTER, W. T. (1952). **A textbook of pharmacology. Principles and application of pharmacology to the practice of medicine.** pp. xiii + 1240. Philadelphia & London: W. B. Saunders Company. 75s.

SCANZIANI, P. (1952). 300 razze di cani. **[300 breeds of dog.]** pp. 171. Rome: Edizione Pan. L.1250.

ZORN, W. (1952). Pferdezucht. **[Horse breeding.]** pp. 322. Stuttgart z.Z. Ludwigsburg: Eugen Ulmer. 3rd Edit. DM. 12.60.

ANON. (1951). Mécanisme physiologique de la sécrétion lactée. **[Physiology of milk secretion.]** pp. 180. Paris: Centre National de la Recherche Scientifique. Fr. 1200.

ANON. (1952). **Microbial growth and its inhibition. First international symposium of chemical microbiology. World Health Organisation Monograph Series. No. 10.** pp.285. Geneva: World Health Organization. $3.00. Fr. fr. 960. Sw. fr. 12. 15s.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey, Surrey.

DISEASES CAUSED BY BACTERIA AND FUNGI, 1790-1855.

Activity of *Str. agalactiae* in milk influenced by the ration, **1790** & **1791**; Streptococcal mastitis, immunological studies, **1792**; Anthrax in milk, **1793**; Cultivation of *B. anthracis* on media containing calcium or oxalate, **1794**; TB. in cattle in Yugoslavia, **1795**; Effect of repeated inoculations on the tuberculin test, **1796**; The i/d tuberculin test in cattle, **1797**; I/d comparative tuberculin test, **1798**; The hamster in diagnosis of TB., **1799**; Cultivation of *M. tuberculosis*, **1800**; The tuberculin test in cats, **1801**; TB. in the ferret, **1802**; Effect of light on B.C.G. vaccine, **1803**; B.C.G. and vole bacillus vaccine. A compaartive trial, **1804**; Immunity without allergy following a methylated tuberculous antigen, **1805**; Mutation of the tubercle bacillus in accordance with Michurin's discoveries, **1806**; So-called "skin TB." in cattle, **1807** & **1808**; Acid-fast bacilli from the placenta of an aborting cow, **1809**; C.f. tests and the mycobacteria infections, **1810**; Sulphone levels in cows treated for Johne's disease, **1811**; Pathogenicity of *C. pyogenes* for lab. animals, **1812**; Whale finger and seal finger: relation to erysipeloid, **1813**; Virulence of test organisms in evaluation of swine erysipelas vaccine, **1814**; Aureomycin in the treatment of *E. monocytogenes* infection, **1815**; Haemorrhagic septicaemia in Pakistan, **1816**; Pasteurellosis in animals, methods of immunization, **1817**; Penicillin treatment of fowl cholera, **1818**; The influence of temp. on the motility of *Past. pseudotuberculosis*, **1819**; Cause and treatment of fowl coryza, **1820**; Enteritis of dogs caused by *Proteus*, **1821**; Treatment of *Bact. coli* mastitis with streptomycin, **1822**; Mastitis due to an organism of the Friedländer (Klebsiella) group, **1823**; *Bact. viscosum equi* infection in a foal, **1824**; Salmonellosis in dogs, **1825**; S. panama and other salmonella, **1826**; S. typhi-murium, **1827**; L. forms of *S. typhi-murium*, **1828**; Toxicity of *S. gallinarum* for rabbits, **1829**; Influence of non-specific factors on the agglutination titre in cattle infected with *Br. abortus*, **1830**; Ring test in brucellosis of goats, **1831**; The *Br. abortus* ring test, **1832**; Brucellosis: milk regulation, **1833**; Treatment of brucellosis with chloramphenicol and *p*-aminobenzoic acid, **1834**; Brucella infections in man and animals in Gt. Britain, **1835**; Intracaudal vaccination with Strain 19, **1836**; Tularaemia—muskrats a source of human infection, **1837**; Bovine leptospirosis, **1838**; Leptospira sp. from a dog, **1839**; Treatment of canicola fever with chloramphenicol, **1840**; *Cl. welchii* in enteritis of calves, **1841**; Growth of *Cl. welchii* in the presence of penicillin, **1842**; *V. fetus* infection in Danish cattle, **1843**; Diagnosis of *V. fetus* infection in bulls, transmission by A.I., **1844**; Bacterial diseases of fur animals, **1845**; Effect of bacterial products in inactivating antibiotics, **1846**; Canine histoplasmosis, **1847**; Cryptococcosis in a cat, **1848**; The moulds and man, **1849**; Transmission of contagious agalactia, **1850**; Encapsulation in rumen bacterial fractions, **1851**; Capacity of micro-organisms to mutate, **1852**; Bartonella in goats, **1853**; *Bartonella bacilliformis*, **1854**; Mouse hepatitis, **1855**.

DISEASES CAUSED BY PROTOZOAN PARASITES, 1856-1878.

Biological races in protozoa, **1856**; Animal trypanosomiasis in Eastern Africa, **1857**; *T. vivax* in rabbits and white rats, **1858** & **1859**; Antrycide in *T. vivax* infection, **1860**; Trials with prophylactic antrycide, **1861**; a new derivative of phenanthridinium, **1862**; Resistance to antrycide in *T. equiperdum*, **1863**; Treatment of dourine with pentamidine, **1864**; *T. evansi* in the c.s.f. of horses, **1865**; Resistance of *T. evansi* in the refrigerator, **1866**; Diagnosis of *Leishmania* in dogs, **1867**; Natural infection of *Phlebotomus* spp. with *Leishmania*, **1868**; Toxicity of sulphaquinoxaline, **1869**; Transmission of *T. annulata* by *Hyalomma excavatum* **1870**; Treatment of theileriasis with "nivaquine", **1871**; Penicillin in animal protozoan diseases, **1872**; Fox toxoplasmosis, **1873**; The toxoplasmosis test of Sabin and Feldman, **1874**; *Toxoplasma gondii* in tissue culture, **1875**; Aureomycin treatment of toxoplasmosis, **1876**; Therap. agents in toxoplasmosis, **1877**; Serological relationship between *Sarcocystis* and *Toxoplasma*, **1878**.

DISEASES CAUSED BY VIRUSES AND RICKETTSIA, 1879-1949.

F. & M. disease in India, **1879**; Control of F. & M. disease, **1880**; A serum-protein vaccine for F. & M. disease, **1881**; Active immunity in F. & M. disease, **1882**; Mass cultivation of F. & M. disease virus, **1883**; Susceptibility of unweaned mice to F. & M. disease virus, **1884**; Adaptation of the F. & M. disease virus to mouse brain, **1885**; Preservation of F. & M. disease virus, **1886**; Effect of mucinase on F. & M. disease, **1887**; Vesicular stomatitis in relation to the control of F. & M. disease, **1888**; Differential diagnosis of vesicular stomatitis and F. & M. disease, **1889**; Prevention of vampire bat rabies by vaccination with chick-embryo-adapted virus, **1890**; Rabies in a lion, **1891**; Rabies in sewer rats, **1892**; The influence of latex of the fig tree on the virus of rabies, **1893**; Adsorption of rabies virus on r.b.c., **1894**; Modification of rabies virus by hyaluronidase, **1895**; Symbiosis between the Coxsackie virus and rabies, **1896**; Prophylaxis of Aujeszky's disease, **1897**; Cow pox in man, **1898**; Chick embryo lesions produced by influenza viruses, **1899**; Intranasal instillation and inhalation as means of infecting mice with influenza, **1900**; Adjuvants in influenza immunization, **1901**; Kidney lesions in unweaned mice following Coxsackie virus infection, **1902**; Electron microscopy of "B" virus after propagation in the rabbit, **1903**; Use of frog in the diagnosis of E.I.A., **1904** & **1905**; Transmission of E.I.A., **1906**; Sporadic bovine encephalomyelitis, **1907** & **1908**; Louping-ill and its transmission to man, **1909**; Scrapie in California

sheep, **1910** & **1911**; W.b.c. count in swine fever, **1912**; Attenuation of swine fever virus by alternating passages through pigs and duck egg, **1913**; Crystal-violet swine fever vaccine, **1914**; Vesicular exanthema threatens a hog cholera serum crisis, **1915**; Vesicular exanthema, a national emergency, **1916**; Aureomycin in treatment of distemper, **1917**; Hepato-neurotropic viruses of dog and man, **1918**; Newcastle disease and canine distemper, **1919**; Infectious myelitis of cats, **1920**; Feline pneumonitis in lab. cats, **1921**; Myxomatosis in biological control of the rabbit, **1922**; Brain lesions in a fowl with N.D. compared with reticulo-endotheliosis in man and horses, **1923**; Efficacy of N.D. vaccines, **1924**; N.D. vaccine containing formolized virus with adjuvants, **1925** & **1926**; Toxicity of N.D.V. for mouse lungs, **1927**; N.D. in man, **1928**; Agglutination and lysis of human r.b.c. by N.D.V., **1929**; N.D. and infectious bronchitis, **1930**; Simultaneous vaccination with laryngotracheitis and fowl pox viruses, **1931**; Tick paralysis. Incidence during poliomyelitis season, **1932**; Attempts to transmit measles to dogs, **1933**; Biochemical relationship of viruses with cells, **1934**; The enzymes of the host cell and virus synthesis, **1935**; Effect of phage on host cell, **1936**; Action of antibacterial substances on bacterial viruses, **1937**; A phagicidal and viricidal agent in maple fruit, **1938**; Q fever in Egypt, **1939**; Q fever in Ubangi-Shari, **1940**; Q fever in Tuscany, **1941**; Susceptibility of *R. burneti* to chemical disinfectants, **1942**; Typhus fevers in the Sudan, **1943**; Chloroform treatment of brain material infected with neurotropic viruses, **1944**; Possibility of differentiating viruses by fluorescence, **1945**; Primulin staining of viruses, **1946**; Cellular pathology of virus infections as seen with the electron microscope, **1947**; Viral proliferation *in vivo*, **1948**; Natural resistance to certain viruses, **1949**.

IMMUNITY, **1950-1964**.

Mechanism of immunological response, **1950**; Role of the spleen and haemolysin production in homologous anamnesis, **1951**; Vitamins in antibody production, **1952**; Effect of U.V. on the reactivity of antibody, **1953**; Conglutination, **1954**; Immunization against plague, **1955**; Plasma fractions in passive immunization and treatment, **1956**; Haemolytic anaemia with jaundice in sheep, **1957**; Exchange transfusion in the foal, **1958**; Erythroblastosis fetalis in rabbits, **1959**; Transplacental passage of antibodies, **1960**; A.C.T.H. and cortisone in resistance and immunity, **1961**; Influence of carbohydrate metabolism on bacterial allergy. Its relation to cortisone desensitization, **1962**; Allergic reaction to dextran, **1963**; Failure of histamine to reproduce the Arthus phenomenon, **1964**.

PARASITES IN RELATION TO DISEASE [ARTHROPODS], **1965-1972**.

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PARASITES IN RELATION TO DISEASE [HELMINTHS], **1973-1988**.

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ERRATA

V.B. **22,** Abst. 197. This paper was incorrectly indexed. The title should read as follows:

FORENBACHER, S. (1950). Otrovanje konja preslicom (Equisetum L.) i kompleks vitamina B. I. Eksperimentalna istraživanja i klinička iskustva. [**Equisetum poisoning of horses and the vitamin B complex. I. Experimental and clinical work.**]—*Vet. Arhiv.* **20**, 405-471. [In Croat. English summary.]

V.B. **23,** No. 6. page 286. Under heading BOOKS RECEIVED, MOZLEY, A., for " Mulluscicides " please read " Molluscicides."

The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration details of which can be obtained from the Royal Society, Burlington House, London, W.1.

List of Abbreviations

A.I. — artificial insemination
ant. — anterior
A.P.F. — animal protein factor
approx. — approximately
aq. — aqueous
av. — average

B.A.L. — British anti Lewisite (2,3 dimercaptopropanol)
b.p. — boiling point

c.f. — complement fixation
clin. — clinical
coeff. — coefficient
conc. — concentration
c.s.f. — cerebrospinal fluid

diam. — diameter
dil. — dilute(d)

E.I.A. — equine infectious anaemia
equiv. — equivalent

ft. — foot (feet) [measurement only]

Hb. — haemoglobin
H.I. — haemagglutination inhibition

inj. — injection(s)
insol. — insoluble
Inst. (inst) — Institute
i/m — intramuscular(ly)
i/p — intraperitoneal(ly)
i/v — intravenous(ly)
i/d — intradermal(ly)

lab. — laboratory (-ories)

max. — maximum (-al)

N.D.V. — Newcastle disease virus
N.D. — Newcastle disease

r.b.c. — red blood corpuscles
r.e.s. — reticuloendothelial system
R.H. — relative humidity

s/c — subcutaneous(ly)
soln. — solution
suppl. — supplement(s) (-ary)
std. — standard

temp. — temperature
therap. — therapeutic

U.V. — ultra-violet

vet. — veterinary
vol. — volume

w.b.c. — white blood corpuscles
wt. — weight

/ — per (*e.g.* wt./vol. m.g./lb. body wt.)

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin.* Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius,* where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius,* being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin.*

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The Editor will be glad to receive books for review in the *Veterinary Bulletin.*